

COMPUTERFACTS®

Technical Service Data

TANDY® MODEL DMP132(26-2814) PRINTER



FEATURES COMPLETE SCHEMATICS • PRELIMINARY SERVICE CHECKS • TROUBLESHOOTING TIPS •
EASY-READ WAVEFORMS • REPLACEMENT PARTS LISTS • SEMICONDUCTOR CROSS-REFERENCE

PRELIMINARY SERVICE CHECKS

This data provides the user with a time-saving service tool which is designed for quick isolation and repair of Computer system malfunctions.

Check all interconnecting cables for good connection and correct hook-up before making service checks.

Always turn printer Off before connecting or disconnecting connectors, boards or Computer.

TEST EQUIPMENT AND TOOLS

TEST EQUIPMENT

Digital Volt/Ohm Meter

TOOLS

Head Cleaning Equipment (Ethyl Alcohol)
Contact and Switch Cleaner (non-spray type)
Phillips Screwdriver
Flat-Blade Screwdriver
IC Insertion and Removal Tools 28 pin
Low Wattage Soldering Iron
Desoldering Equipment

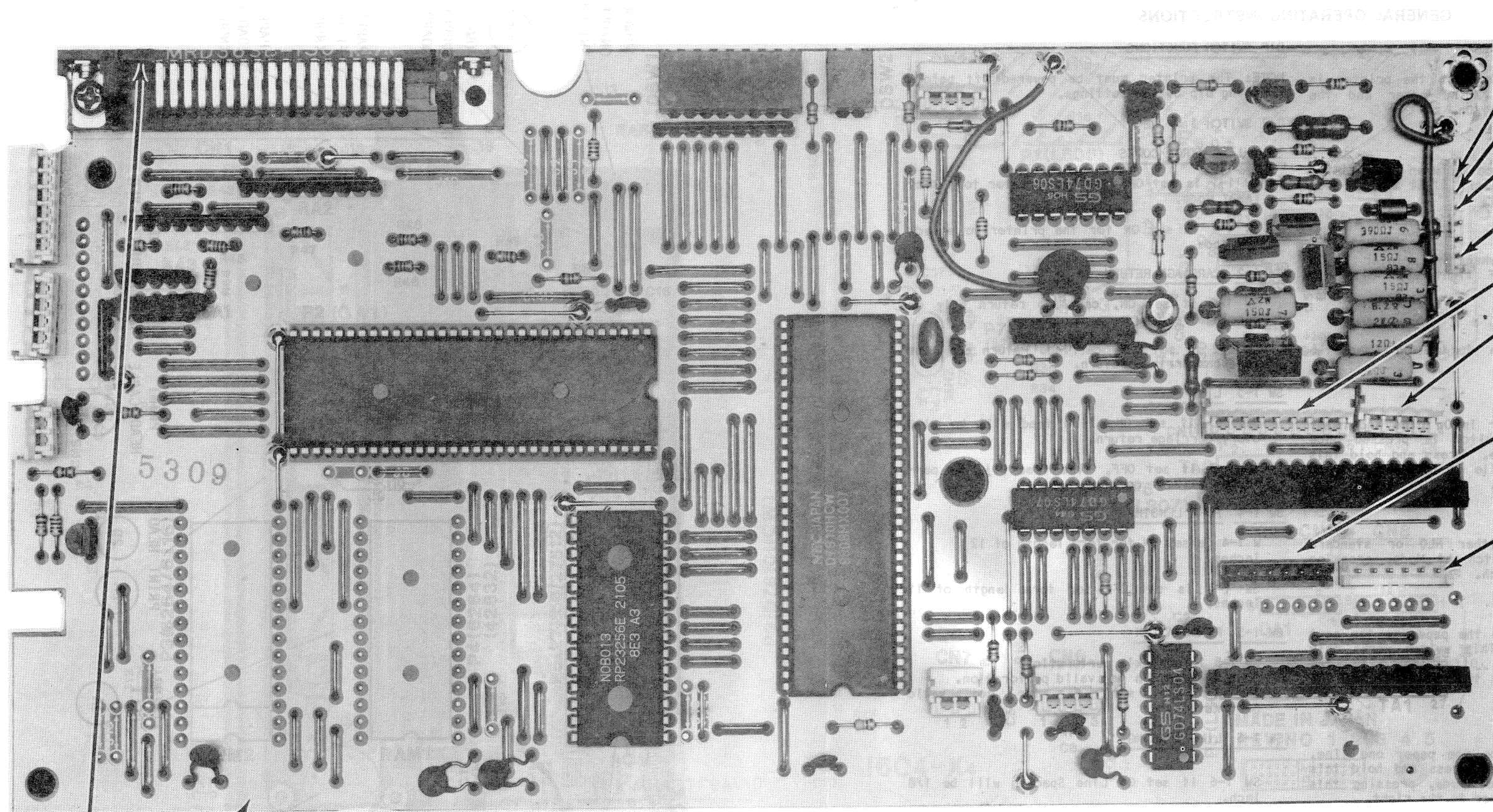
TANDY**MODEL DMP132(26-2814)****CP61****CP61****MODEL DMP132(26-2814)****TANDY**

TANDY
CP61
MODEL DMP132(26-2814)



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PRELIMINARY SERVICE CHECKS (Continued)



- 12V
- 12V
- 24V
- 5V
- CN11
- CN10
- 4B
- CN9
- 3B
- CN8

- CN1
- 5A
- 2E
- 3E
- 4D
- 5C

MAIN LOGIC BOARD

TANDY
CP61
MODEL DMP132(26-2814)

MAIN LOGIC BOARD

PRELIMINARY SERVICE CHECKS (Continued)

GENERAL OPERATING INSTRUCTIONS

POWER LIGHT

The Power Light comes On when the printer is properly connected to 120VAC power and the POWER ON/OFF switch is set On.

ALERT LIGHT

The Alert light will come on when the printer is out of paper. The Alert light blinks when there is a hardware fault.

ON/OFF LINE LIGHT

The light will be On when the printer is On line and ready. ON/OFF light will blink in the Pitch-set Mode.

NLQ LIGHT

The NLQ light will be turned On when the printer is in NLQ Mode.

ON/OFF LINE SWITCH

At Power Up the printer is On Line and ready to print. When the switch is pressed once printer will go Off Line. Press and hold this switch for a moment while in On Line Mode to enter the Pitch-set Mode.

NLQ/DP SWITCH

This switch selects either NLQ or standard print mode. In the Pitch-set Mode, pressing this switch sets the pitch.

FORM FEED SWITCH

This switch will advance the paper to the next top-of-form position. This switch works only when the printer is Off Line. In the Pitch-set Mode, pressing this switch moves the Print Head to the left.

LINE FEED SWITCH

This switch will advance the paper one line. For continuous paper feed press and hold this switch. In the Pitch-set Mode, pressing this switch moves the Print Head to the right.

CHARACTER PITCH SET SWITCHES

Character Pitch can be set by either of two methods:

1. Front Panel Method. In this case any control code from the computer will have no effect on the printing. To select the character pitch using the front panel, set the printer in On Line Mode. Press and hold the pitch (ON/OFF Line) switch until the On Line indicator blinks. Press the (LINE FEED) or (FORM FEED) switch to move the print head to the position indicated on the print cover, Pica 10, Elite 12, Condensed 17, Microfont 17 or Proportional, to select a character pitch. Press the SET (NLQ/DP) switch to set the selected character pitch.

DIP SWITCH FUNCTIONS

NOTE: The printer must be powered Off before changing Dip Switch settings.

DIP SWITCH 1

SW 1-1 CONTROL CODES

SW 1-1 is set OFF for the printer to select TANDY Mode.

SW 1-2 is set ON for the printer to select IBM Mode.

SW 1-2 CARRIAGE RETURN

SW 1-2 If set ON, carriage return only on carriage return.

SW 1-2 If set OFF, carriage return and line feed on carriage return.

SW 1-3 LINE FEED

SW 1-3 If set ON, line feed will be with every carriage return.

SW 1-3 If set OFF, line feed will be performed without carriage return.

SW 1-4 FORM LENGTH

SW 1-4 is set ON for form length of 12 inches.

SW 1-4 is set OFF for form length of 11 inches.

SW 1-5 PERFORATION

SW 1-5 1 inch skip perforation.

SW 1-5 is set On for valid perforation.

SW 1-5 is set OFF for not valid perforation.

SW 1-6 LINE SPACING

SW 1-6 If set On Line Spacing will be 1/8 inch.

SW 1-6 If set OFF Line Spacing will be 1/6 inch.

SW 1-7 CHARACTER SET

If SW 1-1 is OFF, SW 1-7 will select between IBM and TANDY characters. If SW 1-7 is ON IBM character set is selected. If SW 1-7 is OFF TANDY character set is selected. If SW 1-1 is ON, SW 1-7 will select between IBM character set 1 and 2. If SW 1-7 is ON IBM character set 2 is selected. If SW 1-7 is OFF IBM character set 1 is selected.

PRELIMINARY SERVICE CHECKS (Continued)

GENERAL OPERATING INSTRUCTIONS (Continued)

SW 1-8 IN TANDY MODE WP/DP MODE

If SW 1-8 is On Word Processing Mode is selected.

If SW 1-8 is Off Data Processing Mode is selected.

SW 1-8 in IBM Mode Buffer Full

If SW 1-8 is ON the printer will do carriage return only.

If SW1-8 is OFF the printer will do carriage return and line feed.

DIP SWITCH 2

SW 2-1 and SW 2-2 select the interface and baud rate for serial interface.

PARALLEL	Serial 600bd	Serial 1200bd	Serial 2400bd
SW2-1 OFF	OFF	ON	ON
SW2-2 OFF	ON	OFF	ON

INSTALLING THE PAPER RACK

To Install the paper rack on the printer, open the printer cover. Hold the paper rack upright, insert the tips of the rack on the supporters on both sides of the printer on top cover. For single sheet printing pull up the folding leg and insert it into the hole centered on top the case. For printing on continuous fanfold paper place the rack in its horizontal position.

INSTALLING TRACTOR FEED UNIT

To install the tractor feed, turn the printers power switch OFF, remove the paper rack and open the printer cover. Place the front pins into the holes then push down on the rear of the tractor unit until the tractor is secured in position. Turn the platen knob clockwise to move the paper ball toward the platen.

SENSORS AND DETECTORS OPERATION

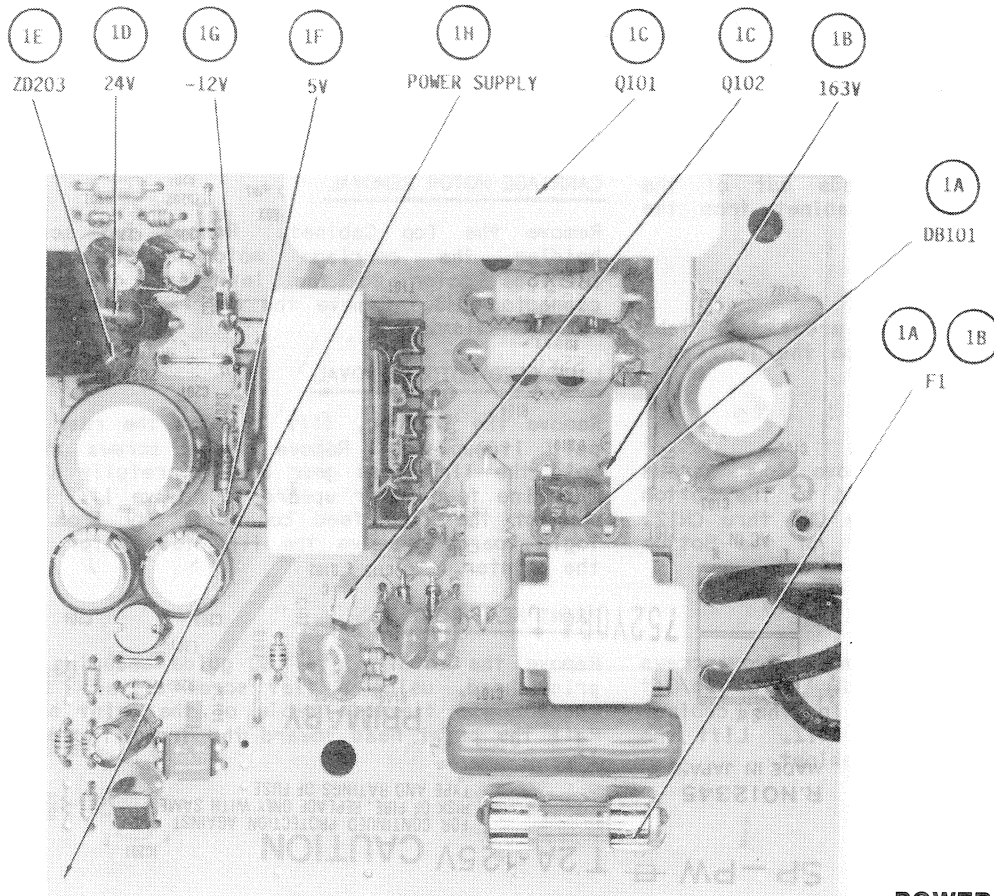
Home Position Sensor. When the carriage assembly pushes against the Microswitch of the Home Sensor the microswitch is turned on causing pin 35 of the CPU IC (P9) to go low.

PAPER EMPTY DETECTOR

The Paper Empty Detector is a photo sensor activated by the reflections of light produced by the LED in that sensor. When paper reflects the light the sensor transistor is turn On and pin 34 of the CPU IC (P9) will check logic high. If the printer runs out of paper the sensor transistor will be turned OFF and pin 34 of the CPU IC P9 will check logic low.

AUTOMATIC PAPER LOADING SWITCH

The automatic paper Loading Switch is a micro-switch which can be turn On by turning the Paper Loading Knob counterclockwise. When the microswitch is turned on pin 36 of the CPU IC P9 checks low.



POWER SUPPLY BOARD

CP61

MODEL DMP132(26-2814)

TANDY

PRELIMINARY SERVICE CHECKS (Continued)

MISCELLANEOUS ADJUSTMENTS

SELF-TEST

To run self-test, press and hold the LINE FEED switch while turning the power switch on. The printer will print the self-test in standard font. If the NLQ switch is pressed instead of the LINE FEED switch, the test will be printed in the Quality font.

PRINT HEAD PLATEN GAP ADJUSTMENT

On the right hand side of the platen is the Print Head adjustment lever. This lever allows adjustment of the Print Head according to paper thickness variations. When the gap is too narrow it can cause smudging in the printout, paper damage at the left or the right margin, or inaccurate line feeding. If the gap is too wide it can cause light printing or missing characters. When the Head adjustment lever is pushed all the way towards the platen it is set to position (1). When the lever is pulled away from the platen it is set to position (7).

Perform the self-test printing in standard character mode, when the Head adjustment lever is at positions (2), (3) and (4). If smudging appears at position (2), loosen the screw

holding the auxiliary board. Push the lever towards the platen slightly while holding the guide pillar (front shaft of the carriage assembly). Tighten the screw then run the self-test again and check the print quality.

If printing is light or missing some characters at position (4) loosen the screw holding the auxiliary board. Pull the lever slightly towards the front of the printer while holding the guide pillar. Tighten the screw. Run the self-test and check the print quality. The adjustment is complete when the print quality is satisfactory.

TIMING BELT TENSION ADJUSTMENT

The tension of the timing belt can be adjusted by moving the position of the idler pulley on the right hand side of the timing belt. Loosen the screw, then press the idler pulley outward to put tension on the timing belt, tighten the screw to hold the idler pulley plate block in place. Check the widths of printed characters at the first and second columns. If the widths of characters are improper it is required to readjust the tension of the timing belt.

DISASSEMBLY INSTRUCTIONS

TOP CABINET REMOVAL

Open and remove the printer cover. Remove the paper rack if installed. Remove two screws from the front and three screws from the back of the printer. Carefully lift up the top cabinet and unplug connectors CN2, CN3 and CN4. To unplug the connectors push down the connector, then pull the leads out of the connector. Remove the Top Cabinet from the Printer.

FRONT PANEL REMOVAL

Remove the Top Cabinet, then press four tabs and remove the Front Panel from the Top Cabinet.

MAIN LOGIC BOARD REMOVAL

Remove the Top Cabinet. Remove four screws fastening the Main Logic Board to the Bottom Cabinet. Disconnect connectors CN5 thru CN12. Lift the Main Logic Board out of the Bottom Cabinet.

POWER SUPPLY BOARD REMOVAL

Remove the Top Cabinet. Remove two screws holding the Power Supply board. Slide On/Off switch up out of its slot in the cabinet bottom. Disconnect connector CN12. Lift the Power Supply Board out of the cabinet.

PRINTER MECHANISM REMOVAL

Remove the Top Cabinet. Remove four screws holding the Printer Mechanism to the cabinet bottom. Disconnect connectors CN5 thru CN11 from Main Logic Board. Lift the mechanism out of the printer cabinet bottom.

CARRIAGE MOTOR REMOVAL

Remove the Top Cabinet. Remove two screws holding the carriage motor. Slide the carriage motor to the left and disconnect connector CN8. Remove the carriage motor from the mechanism.

LINE FEED MOTOR REMOVAL

Remove the tractor, lift it from the rear and pull it upward. Remove three screws which hold the line feed gear box. Carefully slide the line feed motor upward to remove it. Disconnect the line feed connector CN9 from the logic board. Remove the line feed motor from the printer.

PRINT HEAD REMOVAL

Remove the metal plate FBC guide securing the print head, using a flat screw driver. Disconnect the flexible cable of the print head. Pull the print head toward the front to remove it.

PRELIMINARY SERVICE CHECKS (Continued)

SERVICE CHECKS

MATCH THE NUMBERS ON THE INTERCONNECTING DIAGRAM AND PHOTOS WITH THE NUMBERS ON THE SERVICE CHECKS TO BE PERFORMED.

① POWER SUPPLY

- (A) Check AC Fuse (F1), if open, check Bridge Rectifier (DB101) for a short.
- (B) Replace AC Fuse (F1) and power On. Check for 163V at the cathode of Bridge Rectifier (DB101), measured from common tie point.
- (C) Check transistors Q101 and Q102 for shorts.
- (D) Check for 24V at the cathode of Diode D201.
- (E) If the 24V is missing check Zener Diode (ZD203) for short.
- (F) Check for 5V at the cathode of Diode D202.
- (G) Check for -12V at the anode of Diode D203.
- (H) If any of the voltages are missing check the Power Supply Board by substitution.

② PRINT HEAD WILL NOT PRINT

- (A) Check Print Head face for contamination.
- (B) Check Print Head Cable for good connection.
- (C) Check connectors CN10 and CN11 for good connection on the Main Logic Board.
- (D) Check resistances of Print Head Solenoids, check for 33 ohms for each solenoid.
- (E) Check Main Logic Board by substitution.

③ CARRIAGE ASSEMBLY DOES NOT MOVE.

- (A) Turn OFF the printer and manually move the carriage assembly back and forth to check for binding. Check the timing belt and the gear assembly on the left side.
- (B) Check carriage motor connector CN8 for good connection.
- (C) Check the carriage motor windings resistances. Check for 50 ohms for each winding.
- (D) Check the carriage motor by substitution.
- (E) Check the Main Logic Board by substitution.

④ LINE FEED WILL NOT OPERATE

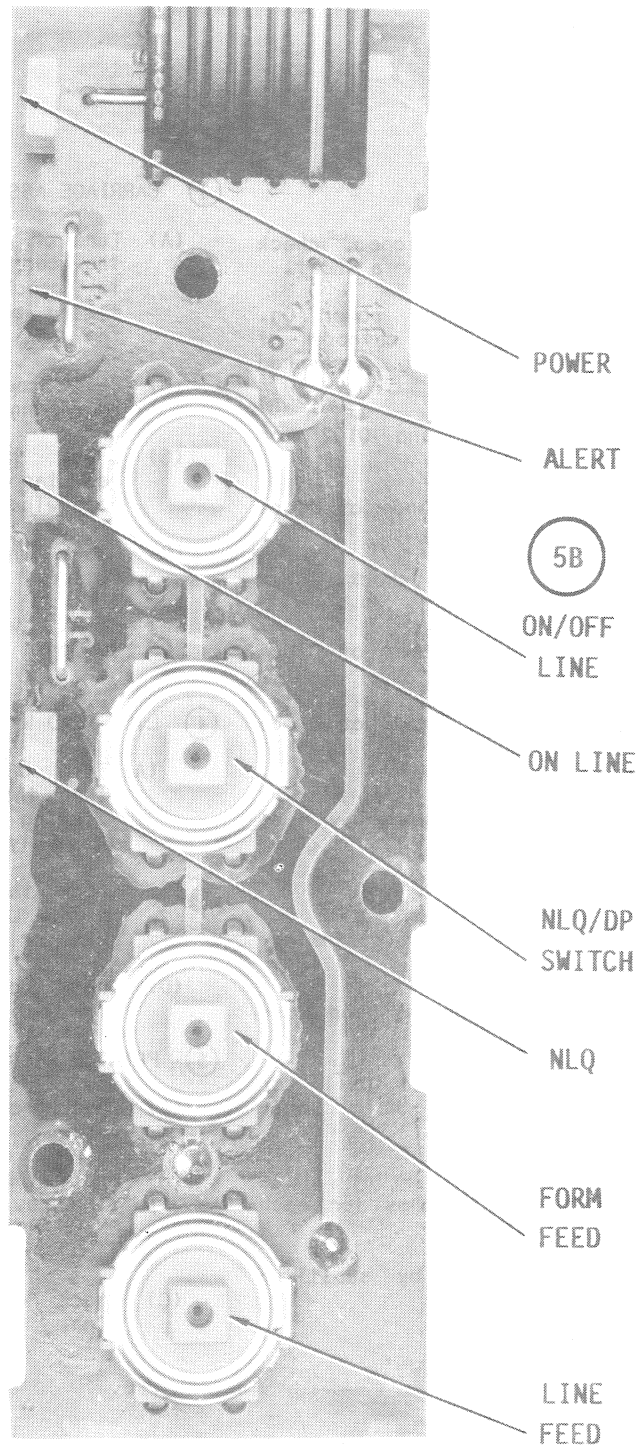
- (A) Turn OFF the printer and manually turn the platen knob. Check for any binding and check the Line Feed gear Assembly.
- (B) Check the resistance of each winding on the Line Feed Motor. Check for 40 ohms for each winding.
- (D) Check Main Logic Board by substitution.

⑤ PRINTER WILL NOT ACCEPT DATA

- (A) Check connector CN1 and interface cable.
- (B) Check ON/OFF line switch by pressing it once. The ready light should come ON. Pressing it again should turn light OFF.
- (C) Check Main Logic Board by substitution.

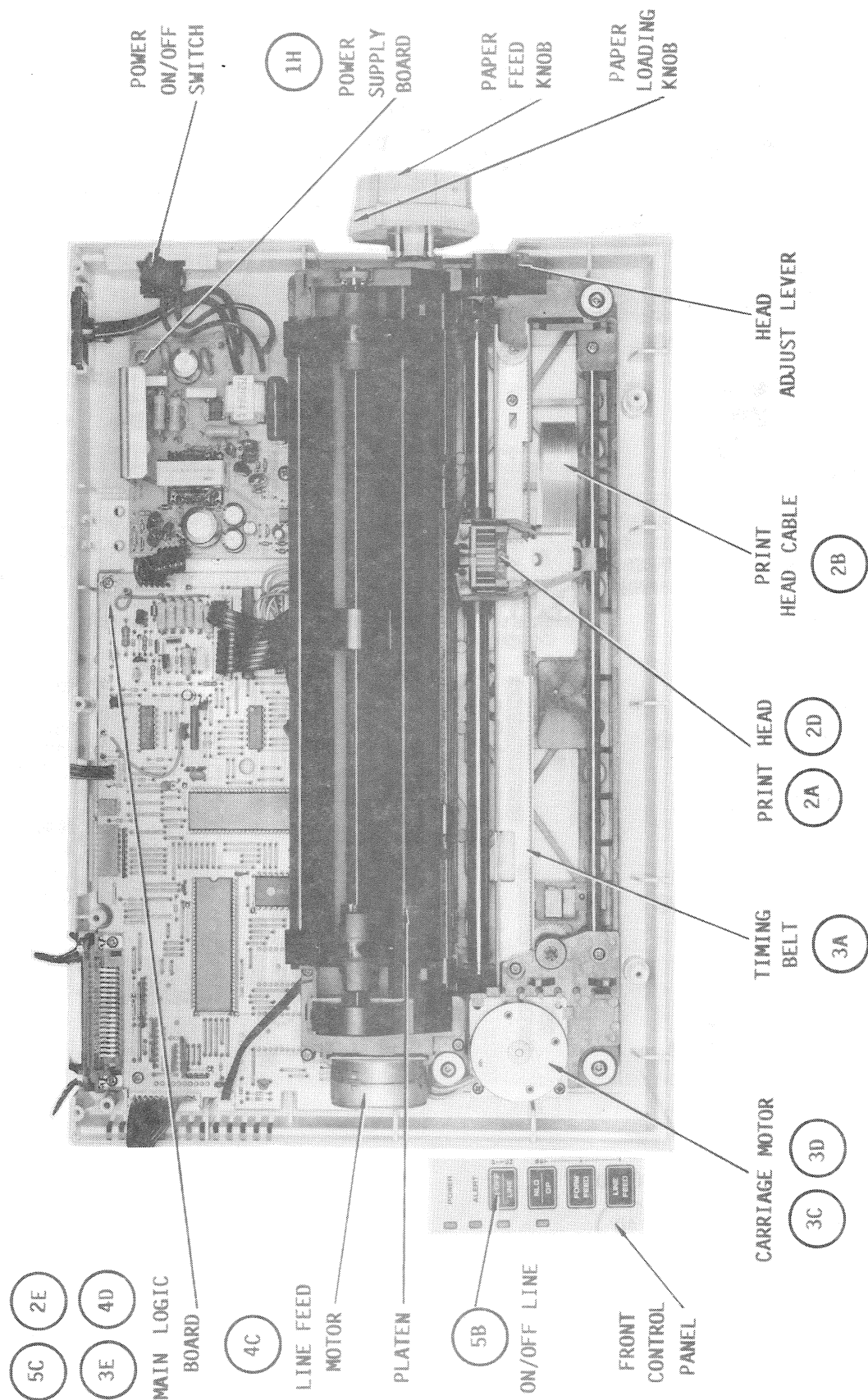
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PRELIMINARY SERVICE CHECKS (Continued)



FRONT CONTROL PANEL

PRELIMINARY SERVICE CHECKS (Continued)



CHASSIS - OVERALL VIEW

CP61 TANDY
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CP661
TANDY
MODEL DMB132/26-281A)



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CP61
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PRELIMINARY SERVICE CHECKS (Continued)

PREVENTATIVE MAINTENANCE

ENVIRONMENT

Computers perform best in a clean, cool area that is below 80 degrees Fahrenheit and free of dust and smoke particles. Even though home Computers are not affected by cigarette smoke as much as commercial Computers are affected, it is better to maintain a smoke-free area around the Computer. Do not block cabinet vents of Computer, Monitor, Printer, or other power devices.

ELECTRICAL POWER

Variations in the line voltage can affect the Computer. Try to avoid these fluctuations by using an AC receptacle that is on a power line not used by appliances or other heavy current demand devices. A power-surge protector, power-line conditioner, or non-interruptible power supply may be needed to cure the problem. **Do not** switch power On and Off frequently.

KEYBOARD

Liquids spilled into the Keyboard can ruin it. Immediately after a spill occurs, disconnect the Computer power plug from AC power outlet. Then, if circuitry or contacts are contaminated, disassemble the Keyboard and carefully rinse the Keyboard printed circuit board with distilled water and let it dry. Use a cotton swab to clean between the keys. Use a non-abrasive contact cleaner and lint-free wipers on accessible connectors and contacts.

DISK DRIVES

Clean the read/write heads of the Disk Drives about once a month or after 100 hours usage. Use only an approved head cleaning kit.

Handle carefully to preserve proper disk head alignment. A sudden bump or jolt to the Disk Drives can knock the disk head out of alignment. If Disk Drive must be transported, place an old disk in slot and close door during transport.

Store disks in their protective covers and never touch the disk surface. Observe the disk handling precautions usually found on the back of disk protective covers.

PRINTERS

Carefully vacuum the Printer regularly. Wipe surface areas clean using a light all-purpose cleaner. Do not oil the machine. The oil will collect abrasive grit and dust. The dust will act as a blanket. This can cause components to overheat and fail.

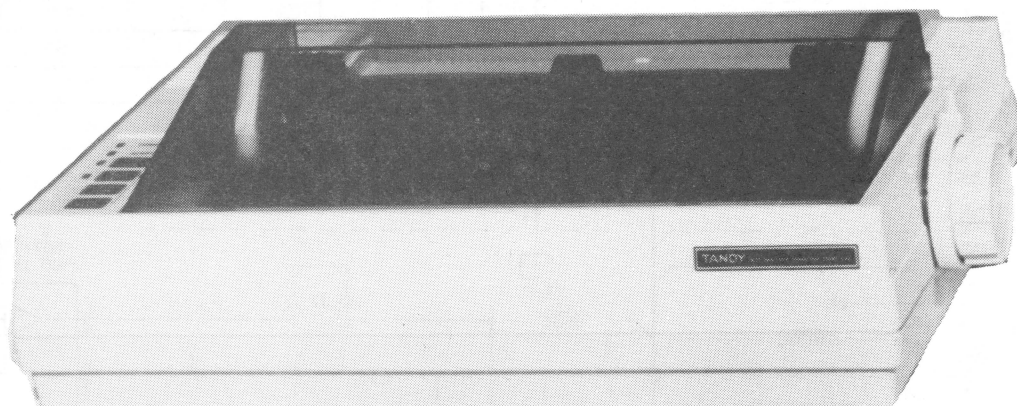
STATIC ELECTRICITY

Static electricity discharge can affect the Computer. In order to minimize the possibility, use anti-static mats, sprays, tools and materials, and maintain good humidity in the Computer environment.

MONITOR

Use an isolation transformer with any Monitor that does not come as part of the system since some Monitors use a HOT chassis (chassis connected to one side of the AC line). The face of the Monitor should never be left on for long period of time at high brightness level except when pattern is being changed periodically. Use caution when cleaning anti-glare screens, to preserve the glare-reduction feature.

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SAFETY PRECAUTIONS

See Page 4

PRELIMINARY SERVICE CHECKS

ENCLOSED

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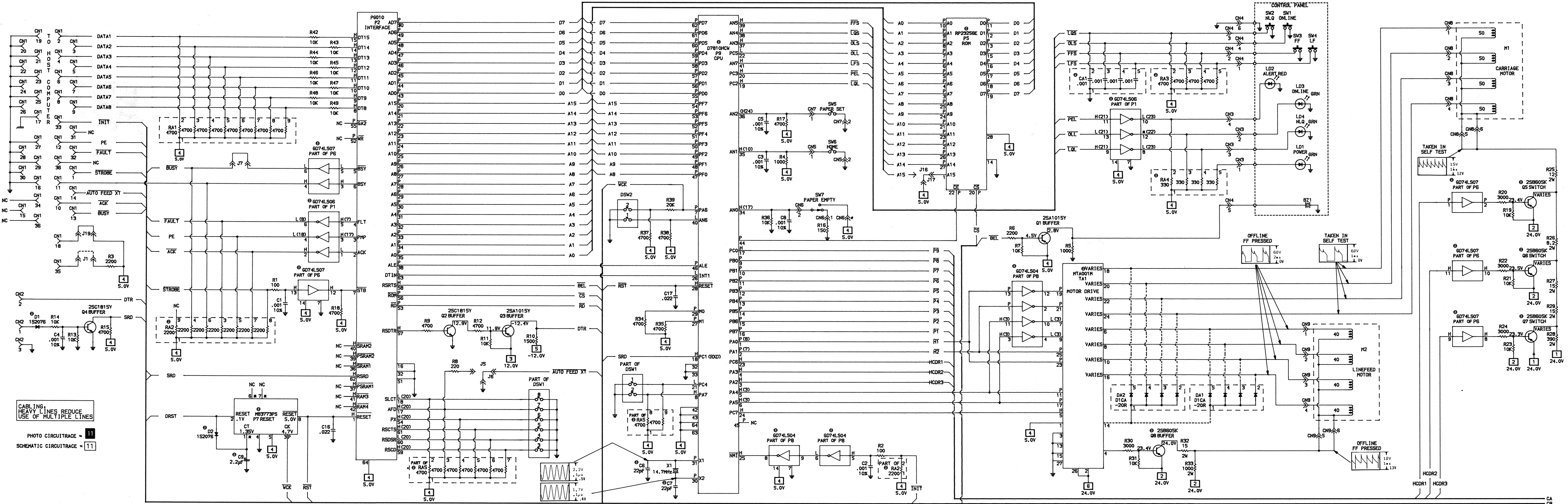
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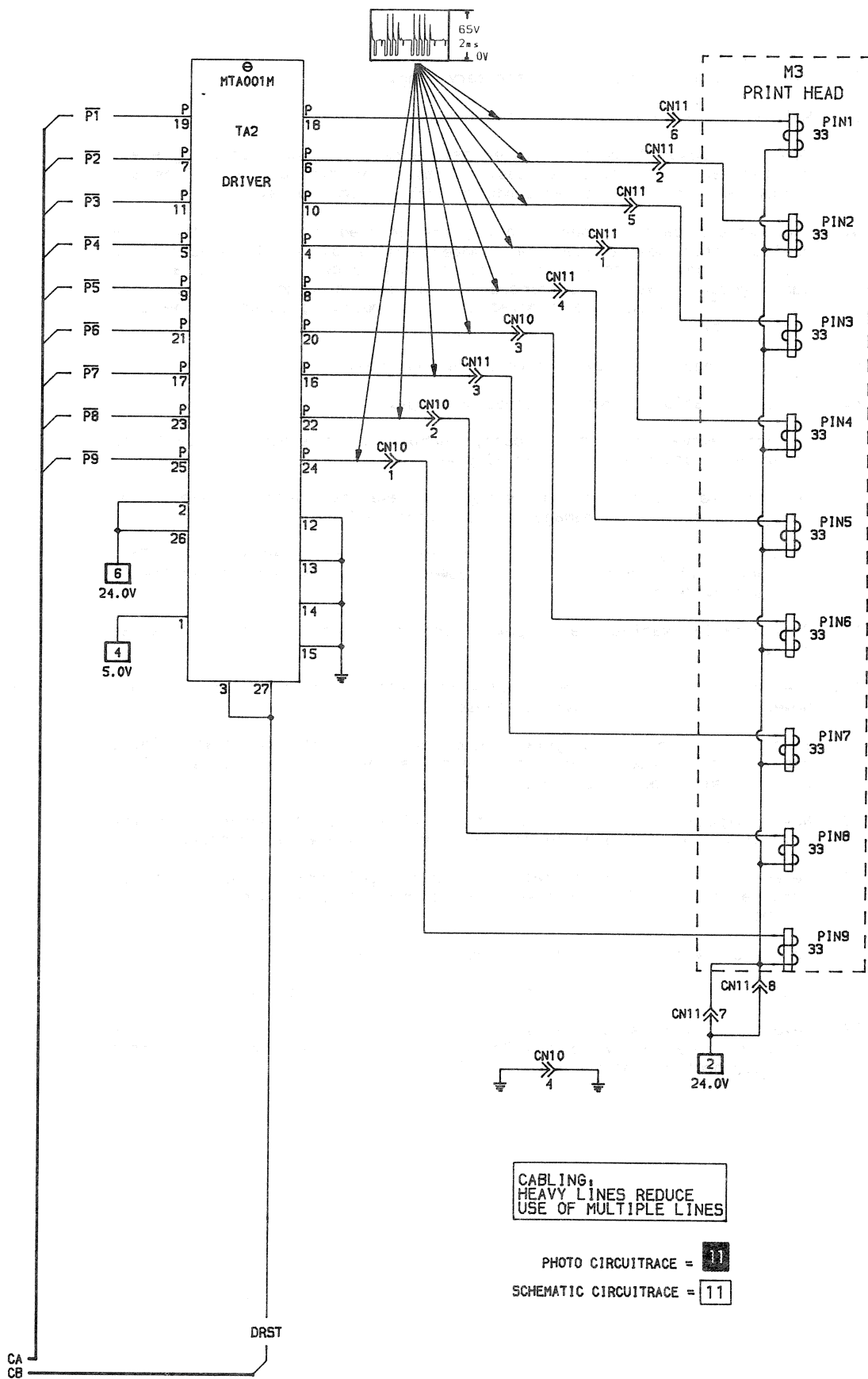
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co. as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co. by the manufacturers of the particular type of replacement part listed. **89CP19094 DATE 10-89**

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CABLING,
HEAVY LINES REDUCE
USE OF MULTIPLE LINES

PHOTO CIRCUITRACE = 11
SCHEMATIC CIRCUITRACE = 11

A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE

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SAFETY PRECAUTIONS

1. Use an isolation transformer for servicing.
2. Maintain AC line voltage at rated input.
3. Remove AC power from the Printer before servicing or installing electrostatically sensitive devices. Examples of typical ES devices are integrated circuits and semiconductor "chip" components.
4. Use extreme caution when handling the printed circuit boards. Some semiconductor devices can be damaged easily by static electricity. Drain off any electrostatic charge on your body by touching a known earth ground. Wear a commercially available discharging wrist strap device. This should be removed prior to applying power to the unit under test.
5. Use a grounded-tip, low voltage soldering iron.
6. Use an isolation (times 10) probe on scope.
7. Do not remove or install board, mechanical or electrical parts or other peripherals with Printer AC power On.
8. Do not use freon-propelled sprays. These can generate electrical charges sufficient to damage semiconductor devices.
9. This Printer is equipped with a grounded three-pronged AC plug. This plug must fit into a grounded AC power outlet. Do not defeat the AC plug safety feature.
10. Periodically examine the AC power cord for damaged or cracked insulation.
11. The Printer cabinet is equipped with vents to prevent heat build-up. Never block, cover or obstruct these vents.
12. Instructions should be given, especially to children, that objects should not be dropped or pushed into the vents of the cabinet. This could cause shock or equipment damage.
13. Never expose the Printer to water. If exposed to water, turn the unit Off. Do not place the Printer near possible water sources.
14. Never leave the Printer unattended or plugged into the AC outlet for long periods of time. Remove AC plug from AC outlet during lightning storms.
15. Do not allow anything to rest on AC power cord.
16. Unplug AC power cord from outlet before cleaning Printer.
17. Never use liquids or aerosols directly on the Printer. Spray on cloth and then apply to the Printer cabinet. Make sure the Printer is disconnected from the AC power line.

TANDY



PHOTO CIRCUITRACE =

SCHEMATIC CIRCUITTRACE =

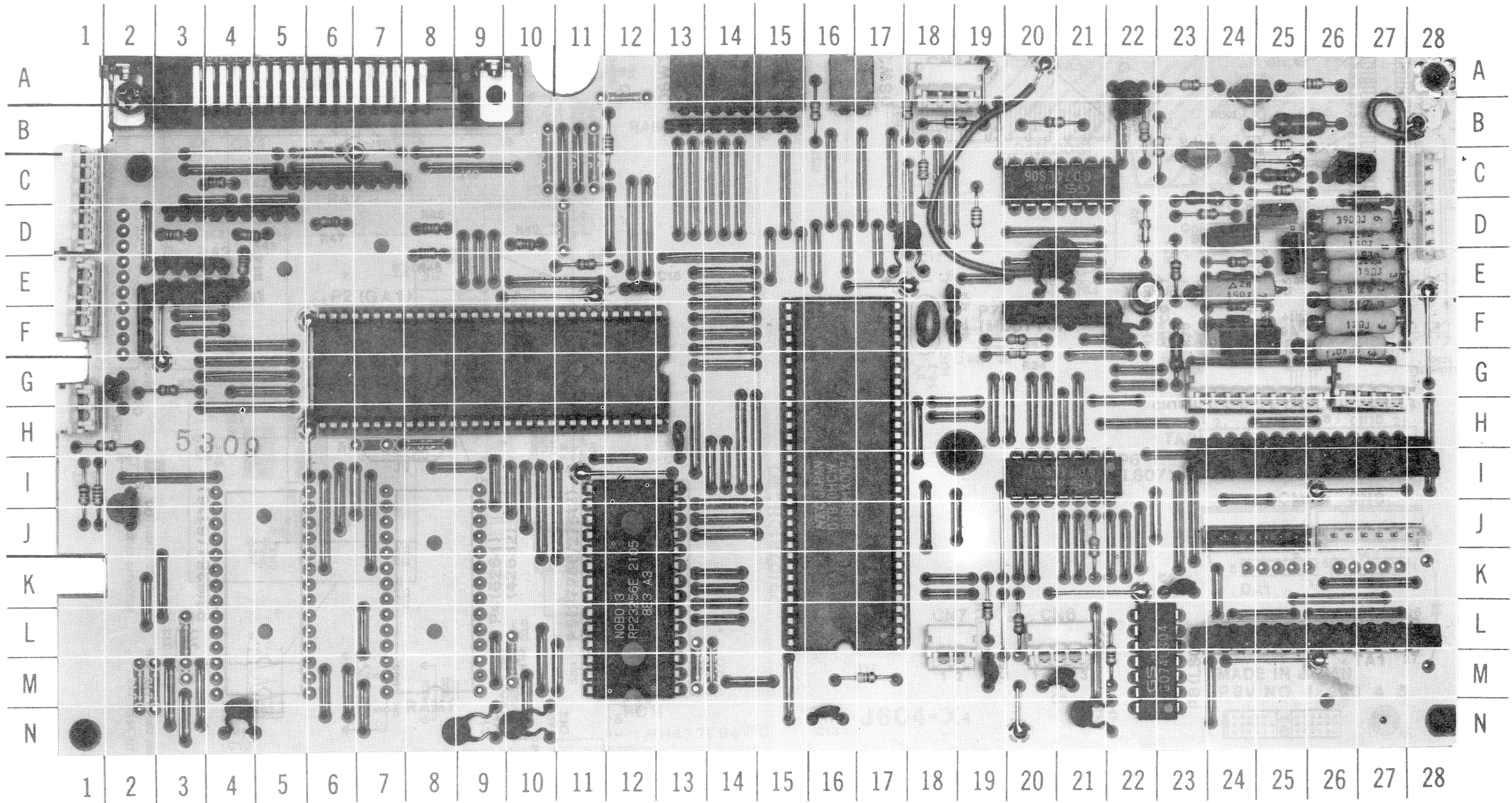
A PHOTOFACTM STANDARD NOTATION SCHEMATIC
WITH **CIRCUITRACE[®]**

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POWER SUPPLY

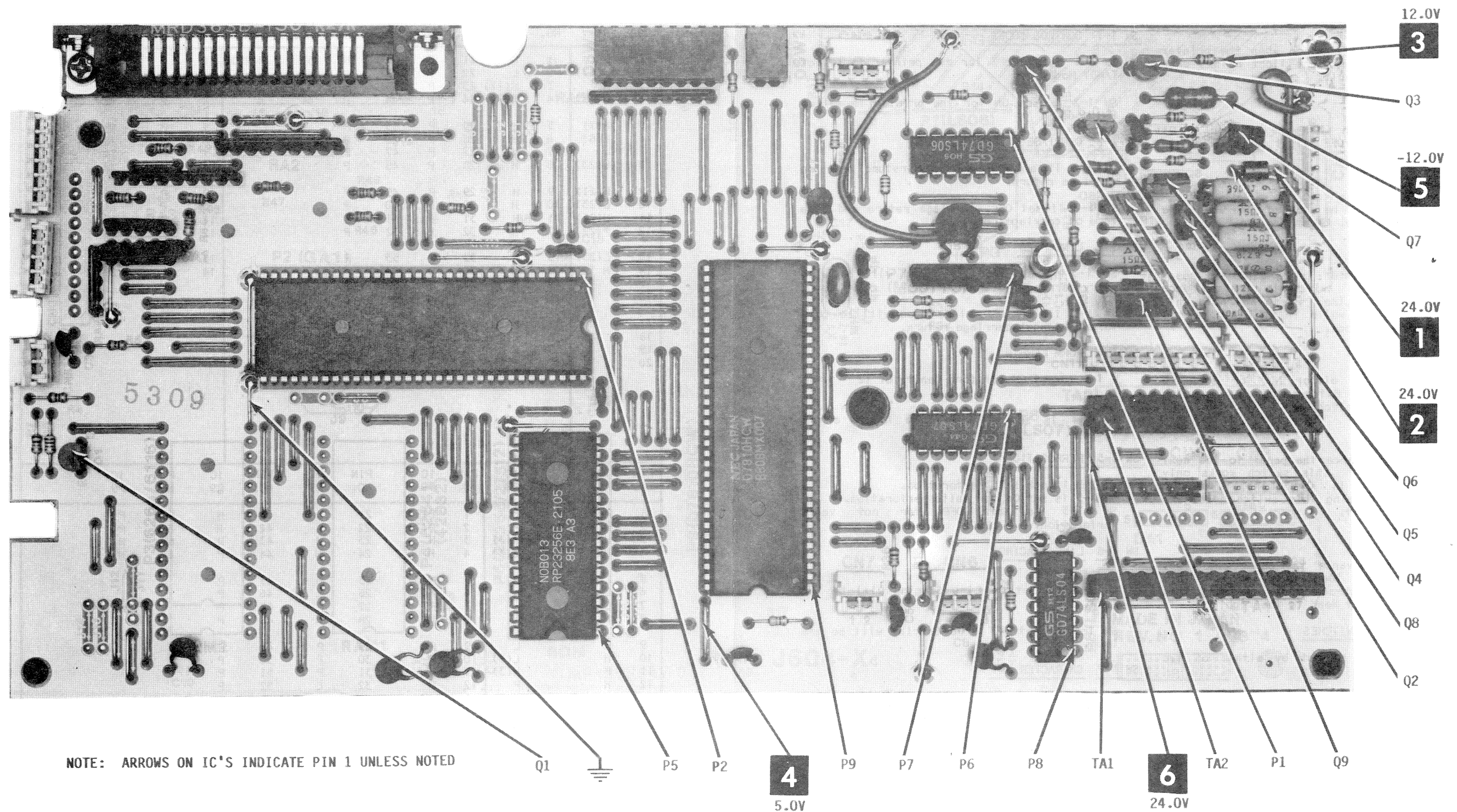
MAIN LOGIC BOARD-GridTrace LOCATION GUIDE

C1	F-22	C11	N-9	CN2	A-18	CN12	C-28	P7	F-21	Q8	D-24	R9	B-22	R19	E-24	R29	D-26	R39	C-18	RA1	C-3
C2	K-23	C12	N-10	CN3	E-1	D1	B-18	P8	M-23	Q9	F-24	R10	B-25	R20	E-24	R30	F-23	R40	F-27	RA2	C-6
C3	G-2	C13	N-16	CN4	C-1	D2	D-22	P9	I-16	R1	D-19	R11	A-26	R21	D-24	R31	E-23	R42	D-3	RA3	C-4
C4	B-24	C14	N-21	CN5	H-1	DSW1	A-14	Q1	J-2	R2	M-22	R12	A-23	R22	C-24	R32	E-24	R43	C-4	RA4	E-2
C5	M-19	C15	H-13	CN6	L-21	DSW2	A-16	Q2	A-22	R3	B-12	R13	B-25	R23	C-25	R33	F-27	R44	E-4	RA5	B-13
C6	E-18	C16	E-12	CN7	L-18	FB1	C-27	Q3	A-25	R4	H-2	R14	B-20	R24	C-25	R34	G-20	R45	D-4	TA1	L-27
C7	F-18	C17	D-18	CN8	J-27	P1	C-20	Q4	C-23	R5	G-3	R15	B-23	R25	F-27	R35	F-20	R46	D-8	TA2	I-25
C8	M-21	C18	E-21	CN9	J-25	P2	G-9	Q5	E-25	R6	I-1	R16	I-20	R26	E-27	R36	L-19	R47	D-6	X1	F-18
C9	E-22	CA1	E-4	CN10	G-27	P5	K-12	Q6	D-25	R7	I-1	R17	M-17	R27	E-27	R37	B-18	R48	D-8	ZD1	F-24
C10	N-4	CN1	A-6	CN11	G-24	P6	I-21	Q7	C-26	R8	E-11	R18	J-21	R28	D-26	R38	B-16	R49	D-10		



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TANDY



GENERAL OPERATING INSTRUCTIONS

POWER LIGHT

The Power Light comes On when the printer is properly connected to 120VAC power and the POWER ON/OFF switch is set On.

ALERT LIGHT

The Alert light will come on when the printer is out of paper. The Alert light blinks when there is a hardware fault.

ON/OFF LINE LIGHT

The light will be On when the printer is On line and ready. ON/OFF light will blink in the Pitch-set Mode.

NLQ LIGHT

The NLQ light will be turned On when the printer is in NLQ Mode.

ON/OFF LINE SWITCH

At Power Up the printer is On Line and ready to print. When the switch is pressed once printer will go Off Line. Press and hold this switch for a moment while in On Line Mode to enter the Pitch-set Mode.

NLQ/DP SWITCH

This switch selects either NLQ or standard print mode. In the Pitch-set Mode, pressing this switch sets the pitch.

FORM FEED SWITCH

This switch will advance the paper to the next top-of-form position. This switch works only when the printer is Off Line. In the Pitch-set Mode, pressing this switch moves the Print Head to the left.

LINE FEED SWITCH

This switch will advance the paper one line. For continuous paper feed press and hold this switch. In the Pitch-set Mode, pressing this switch moves the Print Head to the right.

CHARACTER PITCH SET SWITCHES

Character Pitch can be set by either of two methods:

1. Front Panel Method. In this case any control code from the computer will have no effect on the printing. To select the character pitch using the front panel, set the printer in On Line Mode. Press and hold the pitch (ON/OFF Line) switch until the On Line Indicator blinks. Press the (LINE FEED) or (FORM FEED) switch to move the print head to the position indicated on the print cover, Pica 10, Elite 12, Condensed 17, Microfont 17 or Proportional, to select a character pitch. Press the SET (NLQ/DP) switch to set the selected character pitch.

DIP SWITCH FUNCTIONS

NOTE: The printer must be powered Off before changing Dip Switch settings.

DIP SWITCH 1

SW 1-1 CONTROL CODES

SW 1-1 is set OFF for the printer to select TANDY Mode.

SW 1-2 is set ON for the printer to select IBM Mode.

SW 1-2 CARRIAGE RETURN

SW 1-2 If set ON, carriage return only on carriage return.

SW 1-2 If set OFF, carriage return and line feed on carriage return.

SW 1-3 LINE FEED

SW 1-3 If set ON, line feed will be with every carriage return.

SW 1-3 If set OFF, line feed will be performed without carriage return.

SW 1-4 FORM LENGTH

SW 1-4 is set ON for form length of 12 inches.

SW 1-4 is set OFF for form length of 11 inches.

SW 1-5 PERFORATION

SW 1-5 1 inch skip perforation.

SW 1-5 is set On for valid perforation.

SW 1-5 is set OFF for not valid perforation.

SW 1-6 LINE SPACING

SW 1-6 If set On Line Spacing will be 1/8 inch.

SW 1-6 If set OFF Line Spacing will be 1/6 inch.

SW 1-7 CHARACTER SET

If SW 1-1 is OFF, SW 1-7 will select between IBM and TANDY characters. If SW 1-7 is ON IBM character set is selected. If SW 1-7 is OFF TANDY character set is selected. If SW 1-1 is ON, SW 1-7 will select between IBM character set 1 and 2. If SW 1-7 is ON IBM character set 2 is selected. If SW 1-7 is OFF IBM character set 1 is selected.

GENERAL OPERATING INSTRUCTIONS (Continued)

SW 1-8 IN TANDY MODE WP/DP MODE

If SW 1-8 is On Word Processing Mode is selected.

If SW 1-8 is Off Data Processing Mode is selected.

SW 1-8 In IBM Mode Buffer Full

If SW 1-8 is ON the printer will do carriage return only.

If SW1-8 is OFF the printer will do carriage return and line feed.

DIP SWITCH 2

SW 2-1 and SW 2-2 select the interface and baud rate for serial interface.

	Serial 600bd	Serial 1200bd	Serial 2400bd
PARALLEL			
SW2-1 OFF	OFF	ON	ON
SW2-2 OFF	ON	OFF	ON

INSTALLING THE PAPER RACK

To install the paper rack on the printer, open the printer cover. Hold the paper rack upright, insert the tips of the rack on the supporters on both sides of the printer on top cover. For single sheet printing pull up the folding leg and insert it into the hole centered on top the case. For printing on continuous fanfold paper place the rack in its horizontal position.

INSTALLING TRACTOR FEED UNIT

To install the tractor feed, turn the printers power switch OFF, remove the paper rack and open the printer cover. Place the front pins into the holes then push down on the rear of the tractor unit until the tractor is secured in position. Turn the platen knob clockwise to move the paper bail toward the platen.

SENSORS AND DETECTORS OPERATION

Home Position Sensor. When the carriage assembly pushes against the Microswitch of the Home Sensor the microswitch is turned on causing pin 35 of the CPU IC (P9) to go low.

PAPER EMPTY DETECTOR

The Paper Empty Detector is a photo sensor activated by the reflections of light produced by the LED in that sensor. When paper reflects the light the sensor transistor is turn On and pin 34 of the CPU IC (P9) will check logic high. If the printer runs out of paper the sensor transistor will be turned OFF and pin 34 of the CPU IC P9 will check logic low.

AUTOMATIC PAPER LOADING SWITCH

The automatic paper Loading Switch is a micro-switch which can be turn On by turning the Paper Loading Knob counterclockwise. When the microswitch is turned on pin 36 of the CPU IC P9 checks low.

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DISASSEMBLY INSTRUCTIONS

TOP CABINET REMOVAL

Open and remove the printer cover. Remove the paper rack if installed. Remove two screws from the front and three screws from the back of the printer. Carefully lift up the top cabinet and unplug connectors CN2, CN3 and CN4. To unplug the connectors push down the connector, then pull the leads out of the connector. Remove the Top Cabinet from the Printer.

FRONT PANEL REMOVAL

Remove the Top Cabinet, then press four tabs and remove the Front Panel from the Top Cabinet.

MAIN LOGIC BOARD REMOVAL

Remove the Top Cabinet. Remove four screws fastening the Main Logic Board to the Bottom Cabinet. Disconnect connectors CN5 thru CN12. Lift the Main Logic Board out of the Bottom Cabinet.

POWER SUPPLY BOARD REMOVAL

Remove the Top Cabinet. Remove two screws holding the Power Supply board. Slide On/Off switch up out of its slot in the cabinet bottom. Disconnect connector CN12. Lift the Power Supply Board out of the cabinet.

PRINTER MECHANISM REMOVAL

Remove the Top Cabinet. Remove four screws holding the Printer Mechanism to the cabinet bottom. Disconnect connectors CN5 thru CN11 from Main Logic Board. Lift the mechanism out of the printer cabinet bottom.

CARRIAGE MOTOR REMOVAL

Remove the Top Cabinet. Remove two screws holding the carriage motor. Slide the carriage motor to the left and disconnect connector CN8. Remove the carriage motor from the mechanism.

LINE FEED MOTOR REMOVAL

Remove the tractor, lift it from the rear and pull it upward. Remove three screws which hold the line feed gear box. Carefully slide the line feed motor upward to remove it. Disconnect the line feed connector CN9 from the logic board. Remove the line feed motor from the printer.

PRINT HEAD REMOVAL

Remove the metal plate FBC guide securing the print head, using a flat screw driver. Disconnect the flexible cable of the print head. Pull the print head toward the front to remove it.

TEST EQUIPMENT

Test Equipment listed by Manufacturer illustrates typical or equivalent equipment used by SAMS' Engineers to obtain measurements and is compatible with most types used by field service technicians.

Equipment	B&K Precision Equipment No.	Sencore Equipment No.	Notes
OSCILLOSCOPE	1541A, 2120, 2125, 2160	SC61	
LOGIC PROBE	DP51, DP21		
LOGIC PULSER	DP101, DP31		
DIGITAL VOM	388HD, 2800 SERIES, 2900 SERIES	DVM37, DVM56A, SC61	
ANALOG VOM	114, 117, 177, 214		
ISOLATION TRANSFORMER	TR110, 1604, 1653, 1655	PR57	
FREQUENCY COUNTER	1803, 1804, 1805	FC71, SC61	
COLOR BAR GENERATOR	1211B, 1251, 1260, 1249	CG25, VA62A, NT64	
RGB GENERATOR	1260, 1249	RG67	
FUNCTION GENERATOR	3020, 3011A, 3026, 3030		
HI-VOLTAGE PROBE VOM/DMM Accessory probes	HV-44 PR-28(HV)	HP200 TP212	
TEMPERATURE PROBE	TP-28, TP-30		
CRT ANALYZER	467, 470, 480, 490	CR70	
DIGITAL IC TESTER	560, 550, 552		
CAPACITANCE ANALYZER	810, 820, 830	LC76, LC101, LC102	
INDUCTANCE ANALYZER		LC76, LC101, LC102	
TRANSISTOR TESTER		TF46	
FLYBACK-YOKE TESTER		LC76, LC101, LC102	

TROUBLESHOOTING

PRINTER DEAD

Use an Isolation transformer to check power supply voltages. Connect printer to 120 VAC thru Isolation transformer, turn printer on and check for 163V at the cathode of Bridge Rectifier (DB101) from common tie point. If the 163V is not present, check Fuse (F1), On/Off Switch and associated components. If the 163V is present check waveforms at the collector and base of transistors Q101 and Q102 and check the waveform at the anode of diode D101. Check for 24V at the cathode of diode D201. If the 24V is missing check diodes D201 and ZD203. Check for 12V at pin 6 of connector CN12 pin 6. If 12V is missing, check resistor R201 and associated components. Check for 5V at the cathode of diode D202. If the 5.0V is missing, check diode D202, Regulator IC (IC201), Photocoupler (PC101) and associated components. Check for -12V at the anode of diode D203. If the -12V is missing check diode D203 and associated components.

MICROPROCESSOR CPU OPERATION

Check waveforms at pins 30 and 31 of CPU IC (P9). If waveforms are missing check Crystal (X1) and capacitors C6 and C7. Check for reset signal at pin 28 of the CPU IC (P9). Check for a logic low which will change to high after about 5 seconds from time of power On or Initialization.

CARRIAGE MOTOR

Check the carriage assembly for smooth movement by hand, with no power applied to the printer. Check the resistances of the carriage motor windings. Check for 50 ohms between pin 5 and each of pins 1 and 3 of connector CN8 and between pin 6 and each of pins 2 and 4 of connector CN8. Check voltages, waveforms and components associated with pins 18, 20, 22 and 24 of Motor Drive Transistor Array (TA1). Check the 24V source at pins 5 and 6 of connector CN8. If the 24V is missing refer to the power supply section of this troubleshooting guide. Check the oscillator waveforms at pins 30 and 31 of the CPU IC (P9). If the waveforms are missing, check Crystal (X1) and the CPU IC P9. Check the timing belt and timing belt adjustment.

LINE FEED MOTOR

Check the platen for smooth operation without binding. Turn on Printer and set the Printer Off line. Then press Form Feed. Check waveforms at pins 6, 8, 10 and 16 of Motor

Drive IC (TA1). Check the resistances of the Line Feed Motor windings. Check for 40 ohms between pin 5 and each of pins 1 and 3 of connector CN9, and between pin 6 and each of pins 2 and 4 of connector CN9.

PRINT HEAD

Check Print Head and Print Head Cable. Initiate printer self-test. Check waveforms at pins 4, 6, 8, 10, 16, 18, 20, 22 and 24 of Driver IC (TA2). If waveforms are missing check for 24V at pins 2 and 26 of TA2 and check for 5V at pin 1 of TA2. Check for pulses at pins 5, 7, 9, 11, 17, 19, 21, 23 and 25 of IC TA2. Check connectors CN10 and CN11 for good connections.

SENSOR OPERATION

Check for High Logic reading at pin 35 of the CPU IC (P9). Move the carriage assembly to home position, the logic reading should change from Logic High to Logic Low. If the carriage assembly keeps banging against the left side, check connector CN5 for good connection, and check the Home Sensor Microswitch for continuity when the carriage assembly pushes against the Microswitch.

Check for High Logic reading at pin 34 of the CPU IC (P9), the Logic reading should change to Logic Low when the printer is out of paper. If reading won't change, check connector CN6 for good connection and check the Paper Empty Detector by substitution.

Check for a High Logic reading at pin 36 which will change to low when the paper loading knob is turned towards the front of the printer. If the logic reading won't change to low, check connector CN7 for a good connection, and check the paper set Microswitch for continuity. Check the paper set switch by substitution.

PRINTER WILL NOT RECEIVE DATA

Printer prints correctly in self-test Mode, but will not receive data from host computer. Press the select button. On Line LED should turn on. Check the logic reading at pin 37 of the CPU IC (P9), the reading should be low when the printer is On Line and high when the printer is Off Line. If the logic readings are correct, check the switch settings for Dip Switch (DSW1) and check the logic readings at pins 13 and 12 of IC P6.

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PARTS LIST AND DESCRIPTION

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFGR. PART No./ TYPE No.				
		NTE PART No.	ECG PART No.	TCE PART No.	NOTES
MAIN BOARD					
D1, 2	1S2076 8409-11102 1S2076A 8409-11103 D1CA20R 8409-11403	NTE519 NTE519 NTE519 NTE519	ECG519 ECG519 ECG519 ECG519	SK3100/519 SK3100/519 SK3100/519 SK3100/519	USED SOME VERSIONS
DA1, 2					
P1	GD74LS06 74LS06 8409-08006 PG010 8409-10710				
P2					
P5	RP23256E MBM27256 10410-N0B013 TMS27256JL 10410-N0B013-1 HN27256G 10410-N0B013-2 M5L27256K 10410-N0B013-3 TMM27256AD 10410-N0B013-4 UPD27256AD 10410-N0B013-5 [uPD27256AD] D27256 10410-N0B013-6				
P6	GD74LS07 74LS07 8409-08007				

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFGR. PART No./ TYPE No.	NTE PART No.	ECG PART No.	TCE PART No.	NOTES
P7	MB3773PS MB3773 8409-10062	NTE74LS04 NTE74LS04 NTE74LS04	ECG74LS04 ECG74LS04 ECG74LS04	SK74LS04 SK74LS04 SK74LS04	
P8	GD74LS04 74LS04 8409-08004				
P9	D7810HCW UPD7810HCW 8409-10130 [uPD7810HCW]				
Q1	A1015Y 2SA1015Y 8409-07004	NTE290A NTE290A NTE290A	ECG290A ECG290A ECG290A	SK9132 SK9132 SK9132	
Q2	C1815Y 2SC1815Y 8409-07211	NTE85 NTE85 NTE85	ECG85 ECG85 ECG85	SK3124A/289A SK3124A/289A SK3124A/289A	
Q3	A1015Y 2SA1015Y 8409-07004	NTE290A NTE290A NTE290A	ECG290A ECG290A ECG290A	SK9132 SK9132 SK9132	
Q4	C1815Y 2SC1815Y 8409-07211	NTE85 NTE85 NTE85	ECG85 ECG85 ECG85	SK3124A/289A SK3124A/289A SK3124A/289A	
Q5,6,7,8	B605K 2SB605 8409-07100 2SB984 8409-07100-1	NTE294 NTE294 NTE294 NTE32 NTE32	ECG294 ECG294 ECG294 ECG32 ECG32	SK3841/294 SK3841/294 SK3841/294 SK3867A/32 SK3867A/32	
Q9	D1788 2SD1788 8409-07318				
TA1,2	MTA001M MTA001 8409-10061				
ZD1	HZ36-3 8409-12122				

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PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFGR. PART No./ TYPE No.	NTE PART No.	ECG PART No.	TCE PART No.	NOTES
<u>POWER SUPPLY</u>					
D101	1SS144	NTE552	ECG552	SK9000/552	#
D102	8409-11151 SM-1XF08	NTE552	ECG552	SK9000/552	#
D103, 4	8409-11308	NTE519	ECG519	SK3100/519	#
	DS442	NTE519	ECG519	SK3100/519	#
D201	S2LA20				#
D202	8409-11332	NTE116	ECG116	SK3311	#
	11DQ04	NTE116	ECG116	SK3311	#
D203	8409-11309				#
	SM-1XF08				#
	8409-11308				#
DB101	S1WB60	NTE5332	ECG5332	SK9232/5332	#
	S1WBA60	NTE5332	ECG5332	SK9232/5332	#
	8409-11206	NTE5332	ECG5332	SK9232/5332	#
IC201	HA17431P				
	L5431				
	8409-10064				
Q101	C3890	NTE379	ECG379	SK9085/379	#
	2SC3890	NTE379	ECG379	SK9085/379	#
	8409-07220	NTE379	ECG379	SK9085/379	SOME VERSIONS
Q101	2SC4304				
	8409-07221				
Q102	C2060Q	NTE293	ECG293	SK3849/293	#
	2SC2060Q	NTE293	ECG293	SK3849/293	#
	8409-07219	NTE293	ECG293	SK3849/293	SOME VERSIONS
PC101	PC817C				
	PC817BC				
	8409-07502				
PC101	PC111				
	8409-07503				

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFGR. PART No./ TYPE No.	NTE PART No.	ECG PART No.	TCE PART No.	NOTES
ZD201, 2	RD12JSB2	NTE5021T1	ECG5021T1		#
ZD203	8409-12317 RD30FB 8409-12417	NTE5021T1 NTE5084A NTE5084A	ECG5021T1 ECG5084A ECG5084A	SK30V/5084A SK30V/5084A	#

For SAFETY use only equivalent replacement part.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MFGR. PART No.
MAIN BOARD		
C9	2.2 50V 10%	8409-31980

Items not listed are normally available at local distributors.

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PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
AC POWER SUPPLY BOARD			MAIN BOARD		
C101	.1 250V AC	8409-02055	C6	22 NPO 50V 5%	8409-02708
			C7	22NPO 50V 5%	8409-02708
			CA1	CAP ARRAY .001 20% x 4	8409-02551

Items not listed are normally available at local distributors.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	
<u>MAIN BOARD</u>				
RA1	Resistor Array 4700 5% x 8 (4700 10% x 8)	8409-06880		
RA2	Resistor Array 2200 5% x 8	8409-06875		
RA3	Resistor Array 4700 5% x 4	8409-06810		
RA4	Resistor Array 330 5% x 4	8409-06803		
RA5	Resistor Array 4700 5% x 8 (4700 10% x 8)	8409-06880		

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.
AC POWER SUPPLY BOARD		
# L101	Line Filter (7.5mh) (40mH)	8409-30241 8409-30240
# L201	RF Choke (10uH)	8409-34020

For SAFETY use only equivalent replacement part.

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
<u>AC POWER SUPPLY BOARD</u>			
# CN1	Harness	84684-5192	For DC
# F1	Fuse	8409-18230	2 amp @ 125V Slow Blow AC
		8409-18244	1 amp @ 250V Slow Blow AC
# PC101	Photo Coupler	8409-07502	
		8409-07503	
# T101	Pulse Transformer	8409-14207	
		8409-14208	
#	PCB Board	84684-50149	Power, Assembly
		84687-50149	
<u>CHASSIS</u>			
M1	Carriage Motor	84630-1014	
M2	Line Feed Motor	84684-1015	
M3	Print Head	84684-1200U	
		84686-1200U	
<u>CONTROL PANEL</u>			
BZ1	Buzzer	8409-29001	PKM24-4A0
LD1	LED	84300-1111	Power (Green)
LD2	LED	84300-1113	Alert (Red)
LD3	LED	84300-1111	On Line (Green)
LD4	LED	84300-1111	NLQ (Green)
SW1	Switch	8409-24330	On Line
SW2	Switch	8409-24330	NLQ
SW3	Switch	8409-24330	FF
SW4	Switch	8409-24330	LF
SW5	Switch	84630-1106	Paperset
SW6	Switch	94190-1451	Home
SW7	Switch	84300-1101	Paper Empty
	Assembly	84684-50019-1	Control (Main Logic) Board
<u>MAIN BOARD</u>			
DSW1	Switch	8409-24152	DIP, 8 pin
DWS2	Switch	8409-24154	DIP, 2 pin
FB1	Ferrite Beads	8409-30404	
P5	Socket	8409-15006	For IC
X1	Crystal	8409-13010	Oscillator

For SAFETY use only equivalent replacement part.

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SELF-TEST

To run self-test, press and hold the LINE FEED switch while turning the power switch on. The printer will print the self-test in standard font. If the NLQ switch is pressed instead of the LINE FEED switch, the test will be printed in the Quality font.

PRINT HEAD PLATEN GAP ADJUSTMENT

On the right hand side of the platen is the Print Head adjustment lever. This lever allows adjustment of the Print Head according to paper thickness variations. When the gap is too narrow it can cause smudging in the printout, paper damage at the left or the right margin, or inaccurate line feeding. If the gap is too wide it can cause light printing or missing characters. When the Head adjustment lever is pushed all the way towards the platen it is set to position (1). When the lever is pulled away from the platen it is set to position (7).

Perform the self-test printing in standard character mode, when the Head adjustment lever is at positions (2), (3) and (4). If smudging appears at position (2), loosen the screw

holding the auxiliary board. Push the lever towards the platen slightly while holding the guide pillar (front shaft of the carriage assembly). Tighten the screw then run the self-test again and check the print quality.

If printing is light or missing some characters at position (4) loosen the screw holding the auxiliary board. Pull the lever slightly towards the front of the printer while holding the guide pillar. Tighten the screw. Run the self-test and check the print quality. The adjustment is complete when the print quality is satisfactory.

TIMING BELT TENSION ADJUSTMENT

The tension of the timing belt can be adjusted by moving the position of the idler pulley on the right hand side of the timing belt. Loosen the screw, then press the idler pulley outward to put tension on the timing belt, tighten the screw to hold the idler pulley plate block in place. Check the widths of printed characters at the first and second columns. If the widths of characters are improper it is required to readjust the tension of the timing belt.

LINE DEFINITIONS

A0 THRU A15	.....	ADDRESS BITS 0 THRU 15
ACK	.....	ACKNOWLEDGE, INPUT DATA RECEIVED
AUTO FEED XT	.....	AUTO PAPER FEED, ONE LINE AFTER CARRIAGE RETURN
BEL	.....	BUZZER CONTROL
BUSY	.....	BUSY, OFF LINE, DATA ENTRY, PAPER FEED, PRINTING
CS	.....	CHIP SELECT
DATA 1 THRU DATA 8	.....	DATE IN, BITS 1 THRU 8
DO THRU D7	.....	DATA BITS 0 THRU 7
DRST	.....	PRINT HEAD DRIVER RESET
DTR	.....	DATA TERMINAL READY
FAULT	.....	ERROR STATE, PAPER EMPTY, COVER OPEN
FFS	.....	FORM FEED SWITCH
H1,H2		CARRIAGE MOTOR DRIVING PULSES
HCDR1 THRU HCDR3		CARRIAGE MOTOR TIMING PULSES

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INIT .....INITIALIZE, PRINTER MEMORY CLEARED
L1,L2 .....LINE FEED MOTOR DRIVING PULSES
LFDR .....LINE FEED MOTOR TIMING PULSE
LFS .....LINE FEED SWITCH
LQL .....NEAR LETTER QUALITY LED
LQS .....NEAR LETTER QUALITY SWITCH
OLL .....ON LINE LED
OLS .....ON LINE SWITCH
P1 THRU P9 .....PRINT HEAD DRIVING PULSES,
                                     PINS 1 THRU 9
PE .....PAPER EMPTY SENSOR
PEL .....PAPER EMPTY LED
RD .....READ (OBTAIN DATA)
RST .....RESET
SRD .....RECEIVE DATA, SERIAL
STROBE .....STROBE PULSE FOR READ IN DATA
WCK .....CLOCK

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PARALLEL INTERFACE CONNECTOR LINE DEFINITIONS

Pin 1 STROBE

When the printer receives the STROBE signal with logic low from the host computer, the printer reads the data from the printer interface in the computer and sets the Busy Line to logic high.

Pins 2 DATA
thru 9

The host computer sends eight bits of parallel data to the printer. The printer reads the data from the data lines when STROBE pulse is received. A high level indicates a Logic 1, a low level indicates a Logic 0.

Pin 10 ACK

The ACK pulse is logic low generated by the printer being powered On, or being initialized by INIT signal requested by the computer. When the ACK pulse is sent from the printer it tells the computer that the data from previous STROBE pulse has been read in, or the printer is ready to receive the next STROBE pulse.

Pin 11 BUSY

The printer sets the Busy line to a logic high in the following cases:

1. When the printer receives a STROBE pulse.
2. If the receive buffer is full.
3. Out of paper condition occurs.
4. The printer is off line.
5. The printer receives an INIT signal.
6. An error condition occurs.

Pin 12 P.E.

The printer will set the Paper End to logic high when printer runs out of paper.

Pin 13 BUSY

The BUSY line will be at a logic low, if the printer is OFF line, or if it is in out of paper condition.

Pin 14 GND
and 16

Pin 17 CHASSIS GROUND

Pin 18 +5V 80MA MAX SOURCE

Pin 19 GND
thru 30

Pin 32 FAULT

The printer sets the FAULT line low if the printer detects an error or out of paper condition. The ALERT indicator flickers to indicate an error.

Pin 33 INIT

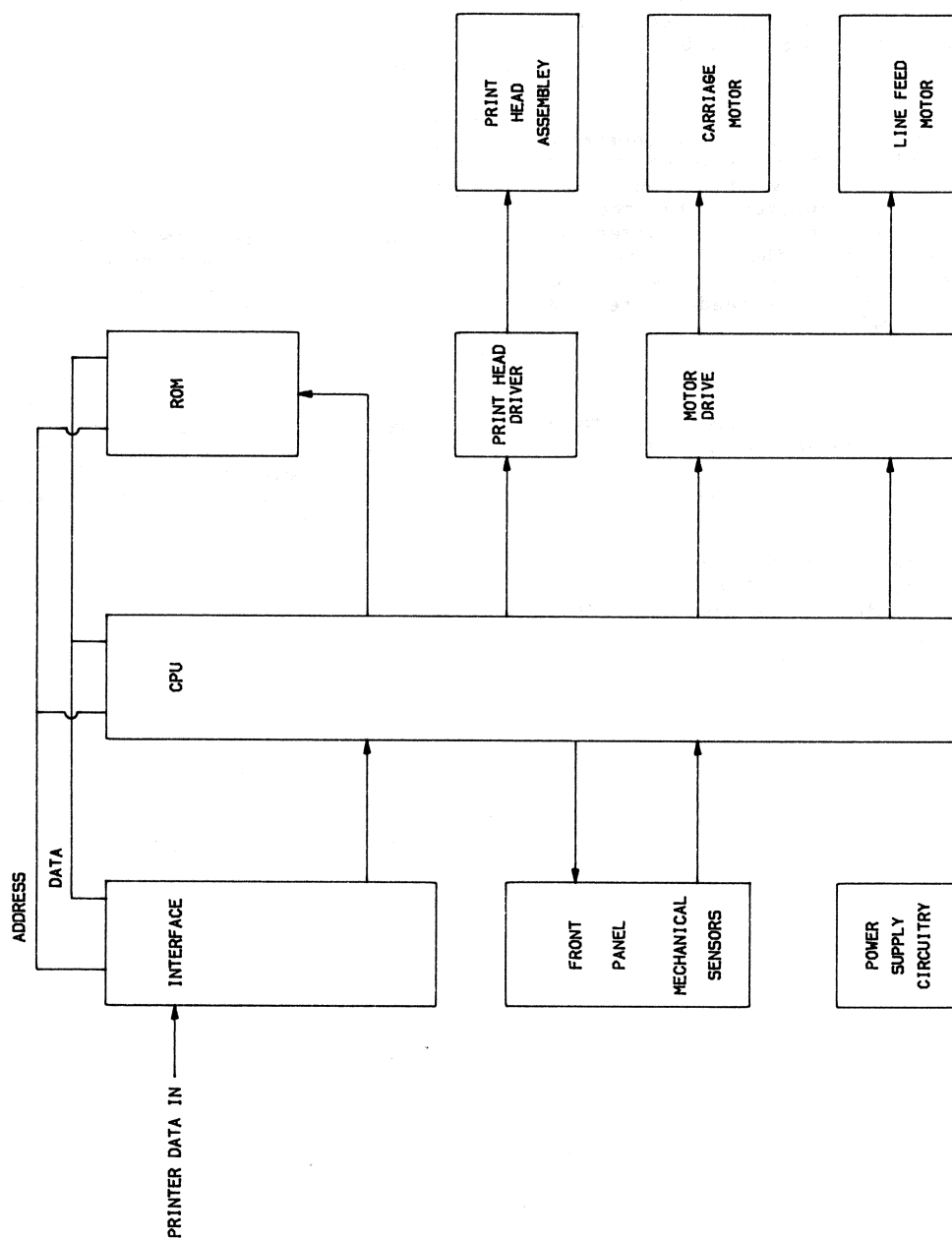
The INIT is a signal with logic low sent from the host computer to the printer. It resets the printer to its initial power-on state. The BUSY line goes high and any data received will be printed.

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BLOCK DIAGRAM

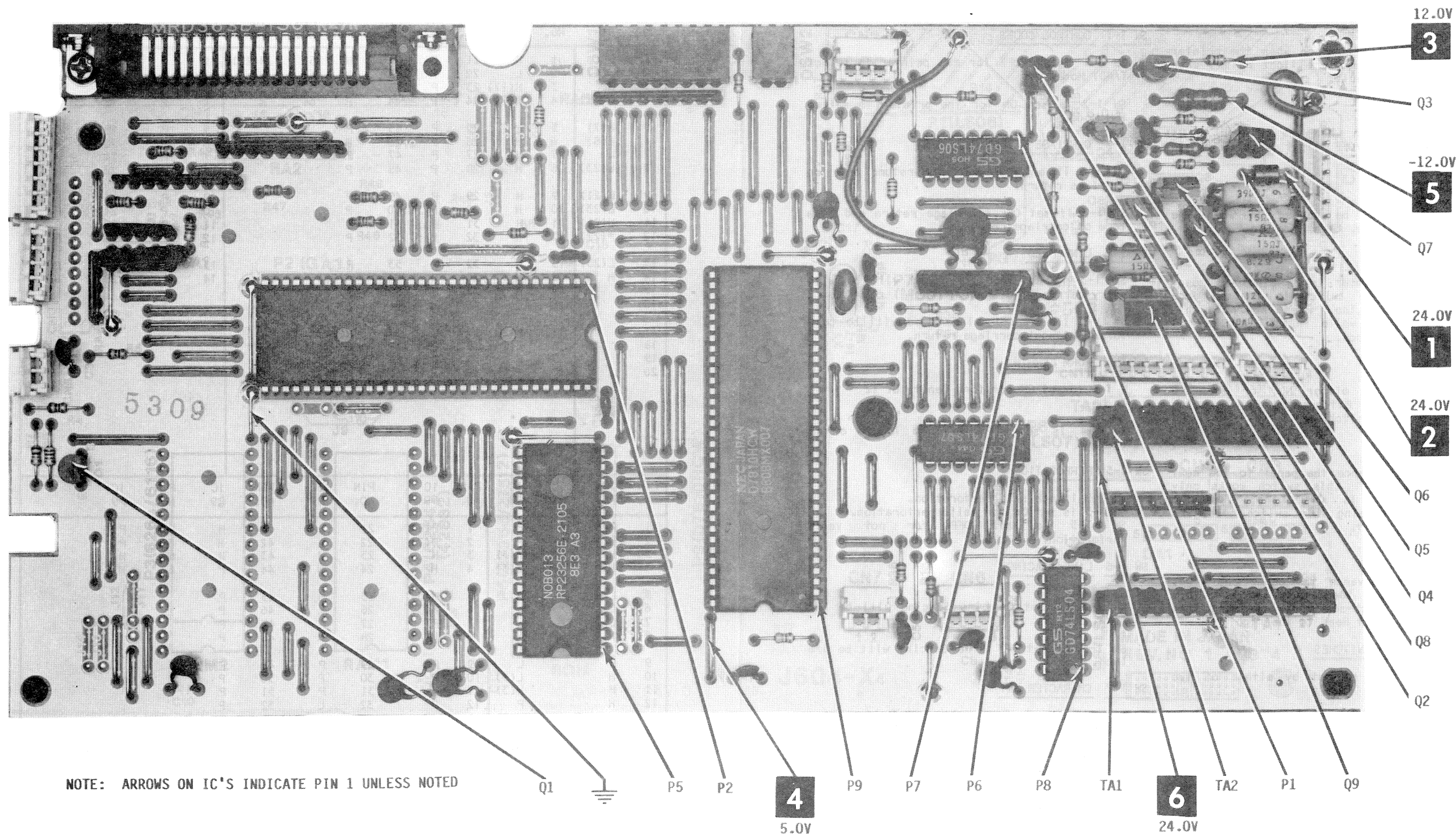


LOGIC CHARTS

PIN NO.	IC P1	PIN NO.	IC P2	PIN NO.	IC P2	PIN NO.	IC P2	PIN NO.	IC P2	PIN NO.	IC P5	PIN NO.	IC P5
1	L	1	H	21	P	41	H	61	H(20)	1	H	15	P
2	H(17)	2	L	22	P	42	H	62	H	2	P	16	P
3	H	3	H(17)	23	P	43	P	63	L	3	P	17	P
4	L(18)	4	H(7)	24	P	44	P	64	H	4	P	18	P
5	H(7)	5	L	25	P	45	P			5	P	19	P
6	L(8)	6	H	26	P	46	P			6	P	20	P
7	L	7	H	27	P	47	P			7	P	21	P
8	L(23)	8	H	28	P	48	P			8	P	22	P
9	H(21)	9	H	29	P	49	P			9	P	23	P
10	L(23)	10	H	30	P	50	P			10	P	24	P
11	H(21)	11	H	31	P	51	L			11	P	25	P
12	*(22)	12	H	32	L	52	P			12	P	26	P
13	L(23)	13	H	33	P	53	P			13	P	27	P
14	H	14	H	34	P	54	H(20)			14	L	28	H
15		15	H	35	P	55	P						
16		16	L	36	H	56	P						
17		17	H(20)	37	H	57	H						
18		18	L(20)	38	P	58	H						
19		19	P	39	H	59	H(20)						
20		20	P	40	H	60	L(20)						

PIN NO.	IC P6	IC P7	IC P8	PIN NO.	IC P9	PIN NO.	IC P9	PIN NO.	IC P9	PIN NO.	IC P9
1	P	*	P	1	P(8)	21	L	41	H	61	P
2	P	L	P	2	P(7)	22	L	42	H	62	P
3	H	P	H(3)	3	H	23	H	43	H	63	H
4	H	L	L(3)	4	H	24	H	44	P	64	H
5	L	H	H	5	H(3)	25	H	45	P		
6	L	*	L	6	H(3)	26	L	46	P		
7	L	*	L	7	P	27	P	47	P		
8	H	H	H	8	H	28	H	48	P		
9	H		L	9	P	29	P	49	P		
10	H		L(3)	10	P	30	P	50	P		
11	H		H(3)	11	P	31	P	51	P		
12	H		P	12	P	32	L	52	P		
13	H		P	13	P	33	L	53	P		
14	H		H	14	P	34	H(17)	54	P		
15				15	P	35	H(10)	55	P		
16				16	P	36	H(24)	56	P		
17				17	H	37	H	57	P		
18				18	H	38	H	58	P		
19				19	H	39	H	59	P		
20				20	H	40	L	60	P		

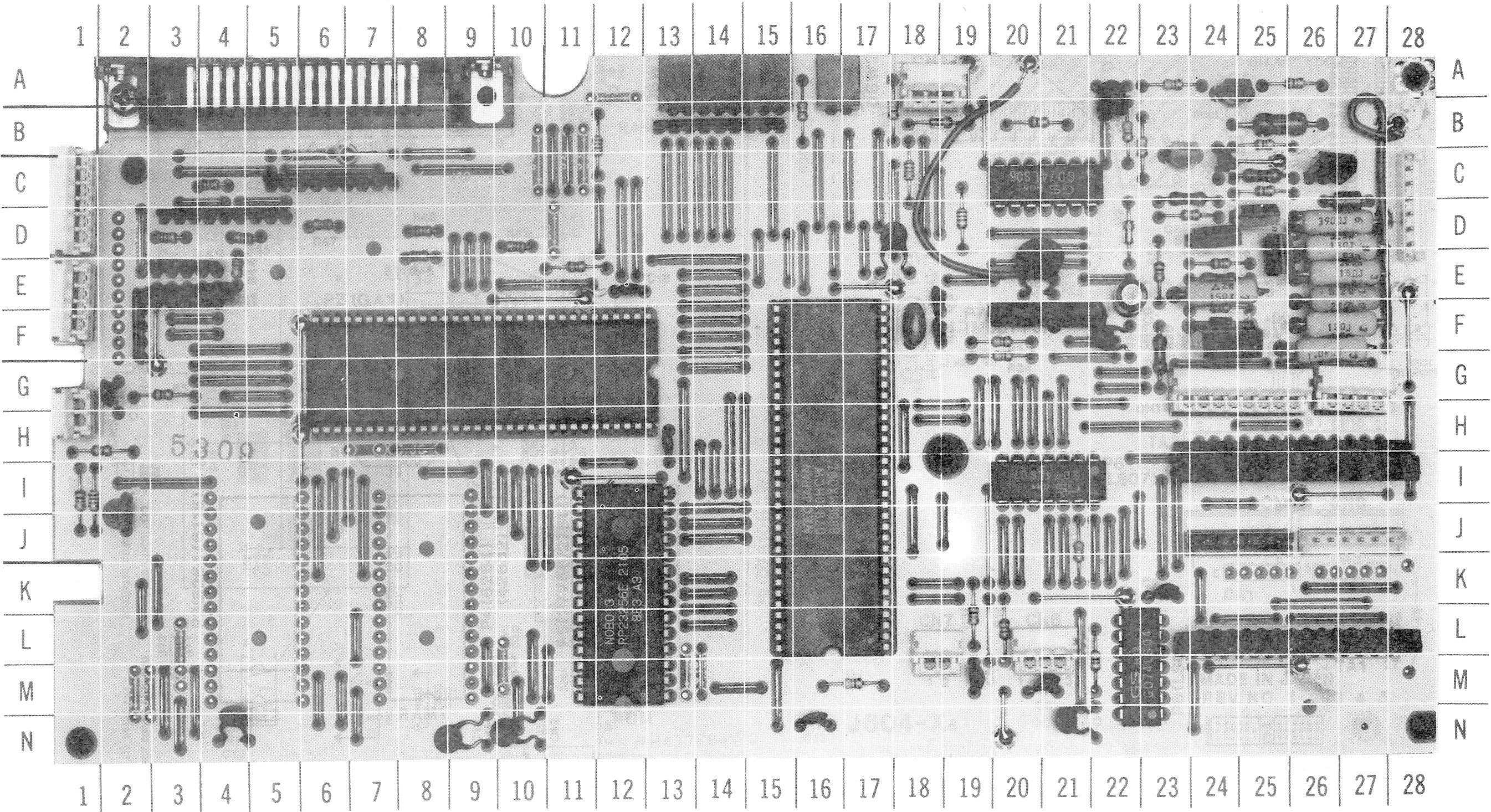
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MODEL DMP132(26-2814)

MAIN LOGIC BOARD-GridTrace LOCATION GUIDE

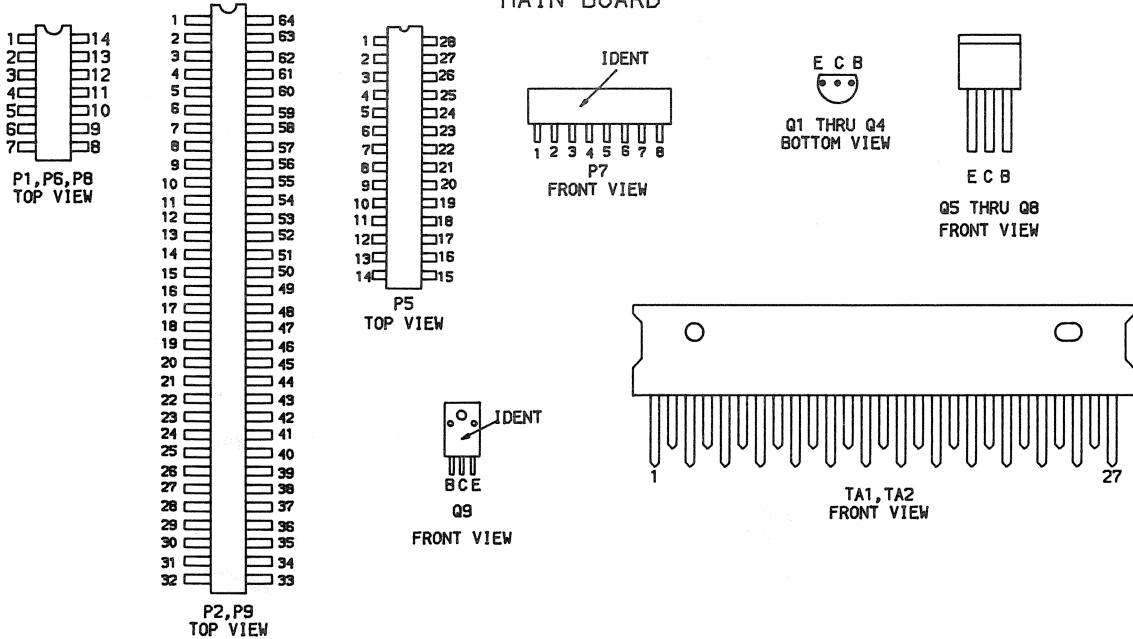
C1	F-22	C11	N-9	CN2	A-18	CN12	C-28	P7	F-21	Q8	D-24	R9	B-22	R19	E-24	R29	D-26	R39	C-18	RA1	C-3
C2	K-23	C12	N-10	CN3	E-1	D1	B-18	P8	M-23	Q9	F-24	R10	B-25	R20	E-24	R30	F-23	R40	F-27	RA2	C-6
C3	G-2	C13	N-16	CN4	C-1	D2	D-22	P9	I-16	R1	D-19	R11	A-26	R21	D-24	R31	E-23	R42	D-3	RA3	E-4
C4	B-24	C14	N-21	CN5	H-1	DSW1	A-14	Q1	J-2	R2	M-22	R12	A-23	R22	C-24	R32	E-24	R43	C-4	RA4	E-2
C5	M-19	C15	H-13	CN6	L-21	DSW2	A-16	Q2	A-22	R3	B-12	R13	B-25	R23	C-25	R33	F-27	R44	E-4	RA5	B-13
C6	E-18	C16	E-12	CN7	L-18	FB1	C-27	Q3	A-25	R4	H-2	R14	B-20	R24	C-25	R34	G-20	R45	D-4	TA1	L-27
C7	F-18	C17	D-18	CN8	J-27	P1	C-20	Q4	C-23	R5	G-3	R15	B-23	R25	F-27	R35	F-20	R46	D-8	TA2	I-25
C8	M-21	C18	E-21	CN9	J-25	P2	G-9	Q5	E-25	R6	I-1	R16	I-20	R26	E-27	R36	L-19	R47	D-6	X1	F-18
C9	E-22	CA1	E-4	CN10	G-27	P5	K-12	Q6	D-25	R7	I-1	R17	M-17	R27	E-27	R37	B-18	R48	D-8	ZD1	F-24
C10	N-4	CN1	A-6	CN11	G-24	P6	I-21	Q7	C-26	R8	E-11	R18	J-21	R28	D-26	R38	B-16	R49	D-10		



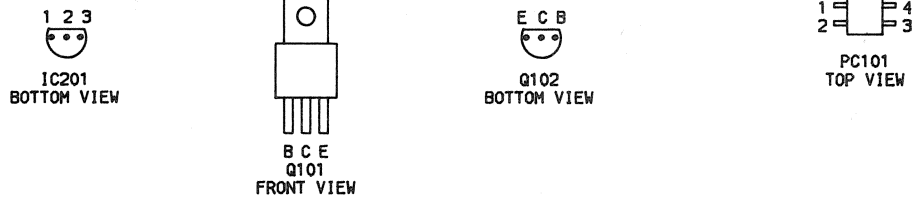
CP61
MODEL DMP132(26-2814)
TANDY

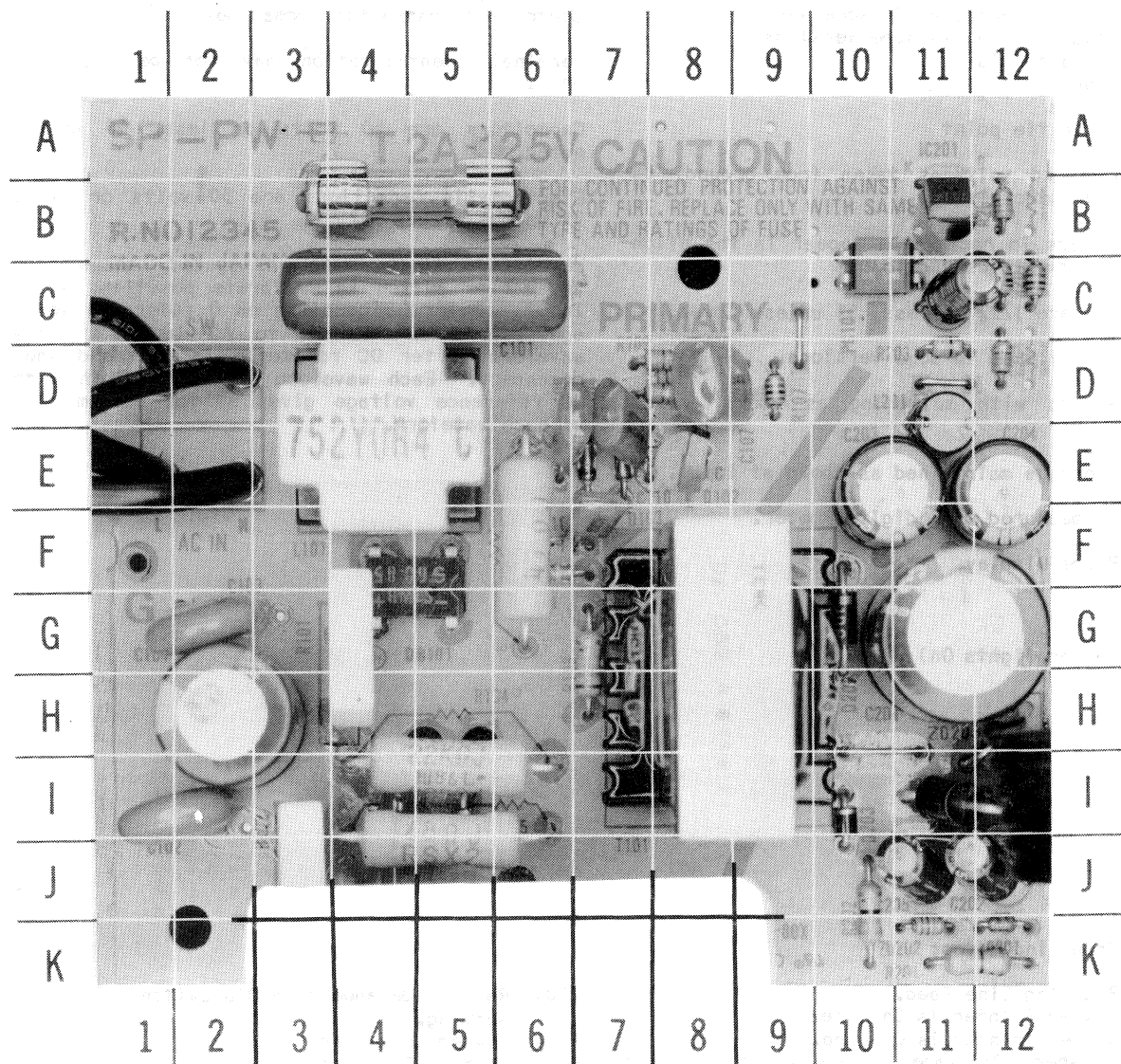
IC PINOUTS AND TERMINAL GUIDES

MAIN BOARD



POWER SUPPLY





CP61
TANDY
MODEL DMP132(26-2814)

A Howard W. Sams **GRIDTRACE™** Photo

POWER SUPPLY BOARD

POWER SUPPLY BOARD-GridTrace LOCATION GUIDE

C101	C-4	C205	J-11	L101	D-4	R109	D-8
C102	I-2	C206	C-11	L201	D-11	R110	D-8
C103	H-2	CN1	H-12	PC101	C-10	R201	K-12
C104	G-2	D101	F-6	Q101	K-5	R202	J-10
C105	I-4	D102	I-5	Q102	E-8	R203	D-11
C106	J-4	D103	E-7	R101	G-4	R204	D-12
C107	D-8	D104	E-7	R102	J-3	R206	C-12
C108	F-7	D201	I-11	R103	G-7	R207	C-12
C109	D-7	D202	G-10	R104	I-5	R208	B-12
C110	D-7	D203	I-10	R105	I-5	T101	G-9
C201	G-11	DB101	F-4	R106	D-8	ZD201	K-12
C202	J-11	F1	B-5	R107	D-9	ZD202	K-11
C203	E-10	IC201	B-11	R108	F-6	ZD203	I-11
C204	E-12						

SCHEMATIC NOTES

-  Circuitry not used in some versions
-  Circuitry used in some versions
- See parts list
- ⊕ Ground
-  Chassis
- ▽ Common tie point

Waveforms and voltages taken from ground, unless noted otherwise.

Item numbers in rectangles appear in the alignment/adjustment instructions.

Resistors are 1/2W or less, 5% unless noted.

Value in () used in some versions.

Measurements with switching as shown, unless noted.

Supply voltage maintained as shown at input.

Voltages measured with digital meter.

Logic Probe Display

L = Low

H = High

P = Pulse

* = Open (no lights On)

Controls adjusted for normal operation.

Terminal identification may not be found on unit.

Capacitors are 50 volts or less, 5% unless noted.

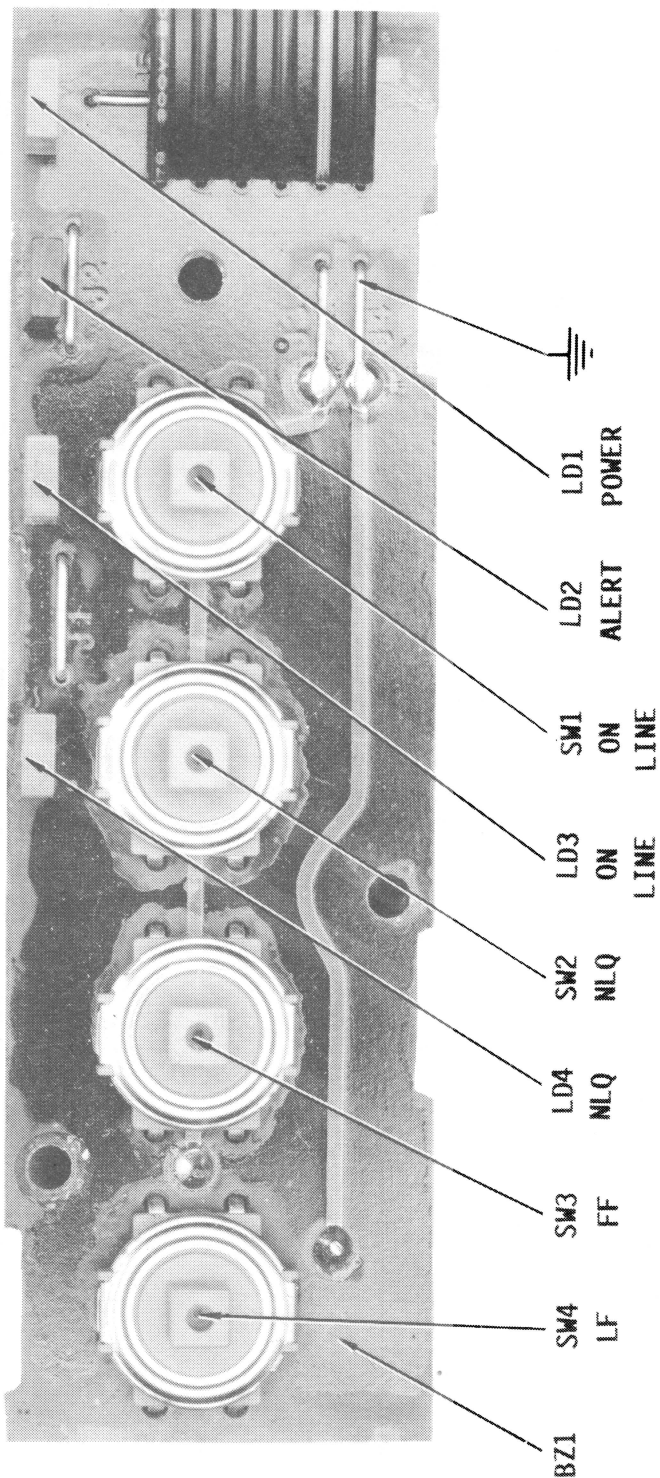
Electrolytic Capacitors are 50 volts or less, 5% unless noted.

Waveforms taken with triggered scope and Sweep/Time switch in Calibrate position, scope input set for DC coupling on 0 reference voltage waveforms. Switch to AC input to view waveforms after DC reference is measured when necessary. Each waveform is 10cm. width with DC reference voltage given at the bottom line of each waveform.

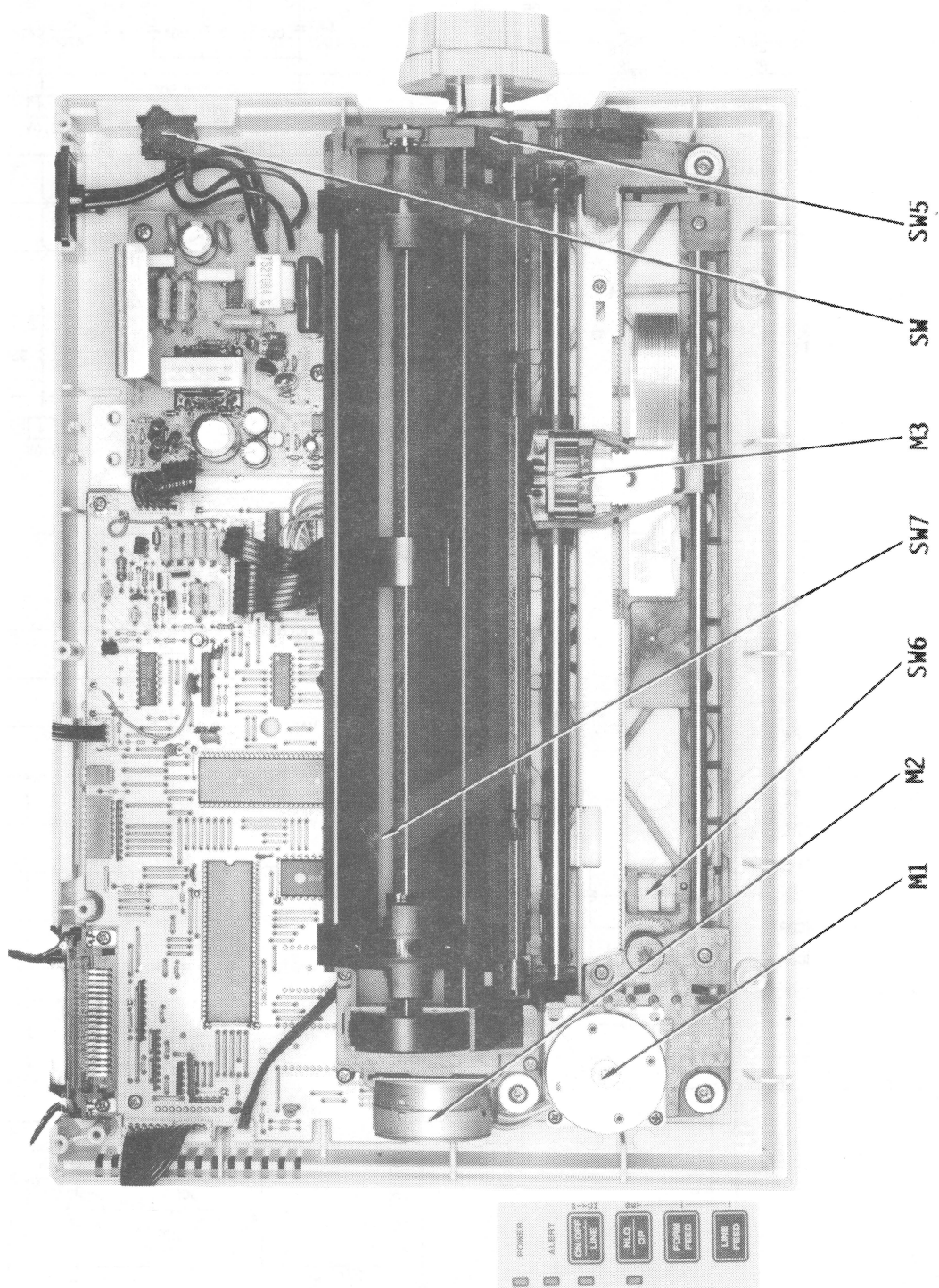
Logic Probe Indicates:

- (3) P during Line Feed.
- (7) L when Printer is On Line.
- (8) H when Printer is On Line.
- (10) L when Carriage Assembly is in Home position.
- (17) L when paper end is activated.
- (18) H when paper end is activated.

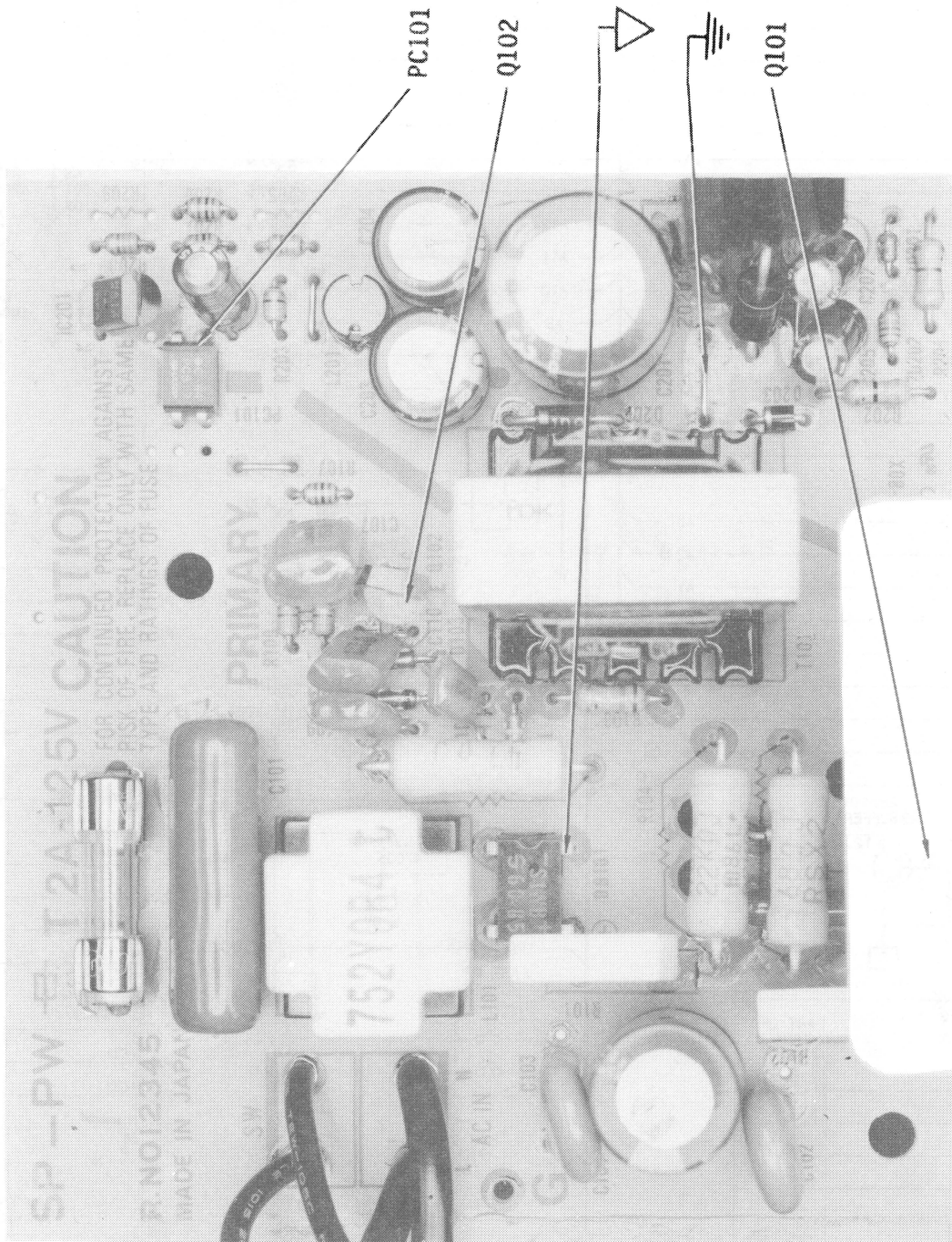
- (20) Reading dependent on Dip Switch setting.
- (21) L when LED is on.
- (22) L when LED is off.
- (23) * when LED is on.
- (24) L when Automatic Paper Load switch is On.



FRONT CONTROL PANEL



CHASSIS - OVERALL VIEW



NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

Remove staples and use cover for file folder.

- Quick Component Location using the SAMS exclusive GRIDTRACE, CIRCUITRACE, and component photographs.

	4	5	6	7	8	9	10	11	12		
J											
K											

- Complete Components Parts List in an easy to use format with field replacements shown when possible. SAMS unique semiconductor, chip and IC cross-reference gives you many replacements to choose from and is available at your Electronic Distributor.

ITEM No.	TYPE No.	MFGR. Part No.	REPLACEMENT DATA					NOTES
			E-CG Part No.	NTE Part No.	RCA Part No.	ZENITH Part No.		
D102	1SS53	1149-2576	E-CG519	NTE519	SK9091/177	103-131		
D103	2N60FM	1149-2527	E-CG109	NTE109	SK3088	103-Z9001		
D201	1N4004GP	1201-4205	E-CG116	NTE116	SK3312	212-76-02		
D501 thru D503	1SS53	1149-2576	E-CG519	NTE519	SK9091/177	103-131		

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GRIDIRACE is a trademark of Howard Tandy is a registered trademark of Tandy Corporation.

To order, or for more information see your Sams Distributor, or telephone 800-428-SAMS.



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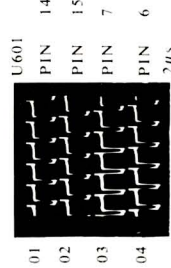


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TROUBLESHOOTING

Verify the processor is functioning by checking the signals on the address lines (pins 10 thru 24 of IC U600) and the data lines (pins 41 thru 56) using a logic probe or a scope if a logic probe is used, refer to the "Logic Chart" for the correct readings. If a scope is used, the waveforms on the address lines (except pins 22 and 23) which have no signal in Power Up mode) should be similar to Figure 1. The waveforms on the data lines should be similar to Figure 2.



- # LOGIC

PIN NO	IC U100	PIN NO	IC U100	PIN NO	IC U102	IC U103	IC U104	IC U105	IC U106	IC U107	IC U108	IC U109
1	P	21	P	1	1	1	1	1	1	1	1	1
2	P	22	P	2	P	P	P	P	P	P	P	P
3	P	23	P	3	H	H	H	H	H	H	H	H

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